Remaking the World Toward an Age of Global Enlightenment

The United Nations Centennial Initiative

UNITED NATIONS academic impact
Sharing a Culture of Intellectual Social Responsibility

BOSTON GLOBAL FORUM
IDEAS THAT MATTER.

Remaking The World

Toward An Age Of Global Enlightenment

NGUYEN ANH TUAN, EDITOR

BOSTON GLOBAL FORUM/UNITED NATIONS ACADEMIC IMPACT

2021

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The United Nations Academic Impact (UNAI) is an initiative that aligns institutions of higher education with the United Nations to support the United Nations goals and mandates, including the promotion and protection of human rights, access to education, sustainability, and conflict resolution. UNAI represents a global diversity of regions and a thematic wealth of disciplines. Since its start in 2010, UNAI has created a diverse network of students, academics, scientists, researchers, think tanks, and institutions of higher education. Today, there are over 1400 member institutions in more than 147 countries that reach over 25 million people in the education and research sectors around the world.

UNAI's work is vital in achieving the United Nations' Sustainable Development Goals (SDG), as they serve as incubators of new ideas and solutions to the many global challenges we face. To ensure that the international community harnesses the innovation of young people and the research community, UNAI is committed to 10 basic education-related principles: Addressing Poverty, Capacity Building, Education for All, Global Citizenship, Access to Higher Education, Human Rights, Intercultural Dialogue, Peace and Conflict Resolution, Sustainability, and commitment to the principles in the United Nations Charter.

UNAI assists members by disseminating information on UN initiatives and activities, providing ideas on how these initiatives can be applied at the local level on college campuses, in classrooms and in communities as well as by providing a platform where university students, academics, and researchers can connect and share ideas to further the SDG and UNAI's 10 principles.

There is no fee for universities to join UNAI. The sole responsibility for members is to actively demonstrate support for at least one of the 10 UNAI principles or SDGs each year.

Boston Global Forum (BGF) was founded to bring together leaders and experts from all around the globe to participate in open public forums to discuss critical issues impacting the world at large. BGF's mission is to provide an interactive and collaborative world forum for identifying and developing action-based solutions to our most profound problems in this age. Areas in which BGF has operated in for the betterment of society include world peace, international cooperation, and human rights. To facilitate discussions, BGF hosts conferences for leaders and experts to identify the most pressing societal concerns and propose creative, practical solutions. In addition to hosting conferences, BGF also fosters cooperation amongst members and experts in their field by proposing initiatives and frameworks to be achieved throughout the forums.

Each year, discussions focus primarily on one topic a year and take place at venues on or near Harvard University as well as on BGF's online forum. BGF invites nominations and applications from individuals and organizations worldwide who believe they can make impactful contributions to the discussions.

The United Nations Centennial Initiative

The United Nations Centennial Initiative was launched in 2019 by the United Nations Academic Impact in partnership with The Boston Global Forum.

The UN Centennial programs host roundtable discussions and conferences to explore concepts and solutions as we look ahead to the global landscape in 2045—the United Nations Centennial year.

The initiative will examine issues surrounding technology, including artificial intelligence, cybersecurity, diplomacy, warfare, and other pressing concerns. Our goal is to look to the future and the role the United Nations can play in making our world more peaceful, democratic, prosperous, and universally secure.

The mission of UN Centennial Initiative and AI World Society is expressed in the initiative's title: Remaking the world – The Age of Global Enlightenment.

The website of the UN Centennial Initiative has resources on the AI World Society and other Boston Global Forum efforts to reshape the global landscape by 2045. The Initiative's roundtables and symposiums can be accessed on the website, which also includes other materials. Additional information on the United Nations Academic Impact, the Boston Global Forum, and AI World Society can also be found on the website.

You can access the United Nations Centennial's website at:
https://un100.net/ or https://UN2045.org/

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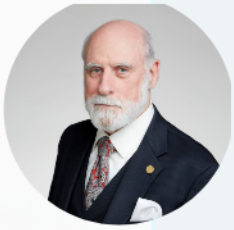
Distinguished contributors

Shinzō Abe
Prime Minister of Japan (9/2006 - 9/2007, 12/2012 - 9/2020), 2015 World Leader for Peace and Security Award.

Ash Carter
Former U.S. Secretary of Defense, Director of the Belfer Center for Science and International Affairs, Belfer Professor of Technology and Global Affairs, Harvard University.



Vint Cerf
"Father of the Internet", Vice President and Chief Internet Evangelist for Google, Co-author of Social Contract for the AI Age, 2019 World Leader in AI World Society Award.

Nazli Choucri
Professor of Political Science, MIT, Boston Global Forum Board Member.

Ramu Damodaran
Chief of the United Nations Academic Impact (UNAI), Co-Chair of the United Nations Centennial – BGF and UNAI Initiative in Honor of the United Nations 2045 Centenary.

Governor Michael Dukakis
Former Governor of Massachusetts, Chairman of the Michael Dukakis Institute for Leadership and Innovation, Co-Founder and Chairman of the Boston Global Forum, Co-Founder of the AI World Society.

Eva Kaili
Member of the European Parliament, Chair of the European Parliament's Science and Technology Options Assessment Panel (STOA), Chair of the Centre for Artificial Intelligence (C4AI), Head of the Hellenic S&D delegation.

Robin Kelly
U.S. Representative (D-IL 2nd District), Vice Chair of the House Energy and Commerce Committee, Member of the House Committee on Oversight and Reform.

Ban Ki-Moon
Secretary-General of the United Nations (1/1/2007 – 31/12/2016), Lead the UNESCO Global Education First Initiative, 2016 World Leader for Peace and Security Award.

Didzis Klavins
Senior Researcher, University of Latvia.

Taro Kono
Japanese Minister of Defense (9/2019 – 9/2020), Member of the House of Representatives, Japan.

Zlatko Lagumdžija
Former Prime Minister and Former Foreign Minister of Bosnia-Herzegovina, World Leadership Alliance – Club de Madrid (WLA-CdM) Member, Member of the History of AI Board.

Stavros Lambrinidis
Ambassador of the European Union to the United States, 2021 World Leader in AI World Society Award

Ursula von der Leyen
President of the European Commission, 2020 World Leader for Peace and Security Award.

Yasuhide Nakayama
Japanese Defense State Minister, Member of the House of Representatives, Japan, Head of Japan's Liberal Democratic Party's Foreign Affairs Division, Mentor of AIWS.net.

Paul Nemitz
Director for Fundamental Rights and Union citizenship in the Directorate-General for JUSTICE of the European Commission, co-author of the AIWS-G7 Summit Initiative 2019.

Nguyễn Anh Tuấn
CEO of the Boston Global Forum, Director of the Michael Dukakis Institute for Leadership and Innovation, Co-Founder of the AI World Society, Founder and former Editor in Chief of VietNamNet.

Andreas Norlén
Speaker of the Swedish Parliament.

Joseph Nye

Harvard University Distinguished Service Professor, Emeritus and former Dean of the Harvard's Kennedy School of Government, Former Assistant Secretary of Defense for International Security Affairs, Member of Boston Global Forum's Board of Thinkers.

Žaneta Ozoliņa

Professor at the Department of Political Science at the University of Latvia and the Director at the Centre for International Politics, Chairwoman of the Latvian Transatlantic Organization.

Thomas Patterson

Bradlee Professor of Government and the Press, Harvard University, Research Director of The Michael Dukakis Institute for Leadership and Innovation, Co-founder of the Boston Global Forum

Judea Pearl

Professor of Computer Science and Director of the Cognitive Systems Lab at the University of California, Los Angeles, recipient of the A.M. Turing Award, 2020 World Leader in AI World Society Award.

Alex Pentland

the Toshiba Professor at MIT, Director, MIT Connection Science and Human Dynamics lab, Co-author of Social Contract for the AI Age.

Iain Duncan Smith

Conservative Member of the Parliament of the United Kingdom.

Vaira Vīķe-Freiberga

6th President of Latvia (1999-2007), President of World Leadership Alliance – Club de Madrid (WLA-CdM) 2013-2019, 2019 World Leader for Peace and Security Award.

Foreword

When my cherished friend Tuan Nguyen of the Boston Global Forum (BGF) and I spoke two years ago on how BGF and the United Nations Academic Impact (UNAI) could mark the 75th anniversary of the United Nations, his ever-restless mind raced forward and asked, "why not think of the UN at 100?" And so, this centennial project began, bringing into its fold some of the finest minds of our times, minds that have anticipated the world we live in today, its terrain of rose and thorn, minds possessed of imagination and reason in looking a quarter century ahead. UNAI was privileged to publish a series of these articles on our website, curated by Tuan, reflecting its mission of being a movement of minds.

Had we embarked on such an exercise in 1995, could we have been better prepared for the extraordinary pace in which our world has moved since then? More particularly, could we have anticipated, and even created the opportunities of collective, concerted global action, infused by the spirit of the United Nations, to protect us from dangers we foresaw and to seize the possibilities then dimly on horizon?

The United Nations came into being as a cerebral, as much as political, innovation, the very first resolution of its General Assembly, in the January of 1946, was on the "problems arising from the discovery of atomic energy." 75 years later, in the January of 2021, Governor Michael Dukakis announced the "Artificial Intelligence International Accord Initiative" whose goal he described as "to stimulate a global conversation that will make sure AI is used responsibly by governments and the private sector around the world." It is precisely conversations of that nature this volume, and BGF Roundtables over the past months, have fostered. Conversations that will continue in the quarter century ahead, shaping a world governed by international law and the exercise of international as much as individual, and indeed intellectual, responsibility (which UNAI seeks to foster) where the creativity and innovation of the human person work to shape a world worthy of our times just as surely as that world works to foster and further, in the phrase of our Charter, the "dignity and worth" of that human person.

Ramu Damodaran

Chief, United Nations Academic Impact (UNAI)
Co-Chair BGF-UNAI Centennial Initiative in Honor of the United Nations 2045 Centenary

New York, New York
May 22, 2021

Foreword

Nothing is more urgent than peace and security in the world, and no organization is better positioned to promote it than is the United Nations. That has been true since its inception in 1945, although the lesson of the last seventy-five years is that the UN's mandate must be enlarged if it is to fulfill the ideals on which it was founded. The task between now and the UN's centennial in 2045 is the remake the UN so that it can play an even larger role in remarking the world.

This book offers ideas that can inform that effort. The ideas are meant to stimulate thought and discussion. Some of the ideas will undoubtedly, and properly, fall by the wayside during the deliberative process. Other ideas, not in this book, will come to the fore. A great deal of thought and experience went into the founding of the United Nations, and that kind of effort is needed once again as we consider how to enhance this remarkable institution.

Michael Dukakis

- *Chair and Co-Founder, Boston Global Forum*
- *Chair, Michael Dukakis Institute for Leadership and Innovation*
- *Three-term governor of Massachusetts*

On behalf of the Boston Global Forum, I want to thank the distinguished women and men who have contributed to the book. In one form or another, they have dedicated their careers to the service of others, and to the common good, and their essays and speeches reflect that dedication.

A special thank you is due to the book's editor, Nguyen Anh Tuan. He envisioned the book project and assembled and guided the contributors. His commitment to world peace and security is unflagging, and the book is yet another testament to his dedication.

Brookline, Massachusetts
June 15, 2021

Nguyen Anh Tuan

- *CEO of the Boston Global Forum (BGF)*
- *Director of the Michael Dukakis Institute for Leadership and Innovation (MDI)*
- *Co-Founder of the AI World Society, Founder and Former Editor in Chief of VietNamNet*

Introduction

In New York in 2019, I met with Ramu Damodaran, Chief of the United Nations Academic Impact, to discuss how his organization and the Boston Global Forum could collaborate on an initiative that would strengthen the United Nations. I suggested that we work to advance pioneering ideas that could help reshape the world as the United Nations progressed toward its centennial in 2045. Ramu embraced the idea, and we created the "United Nations Centennial – Boston Global Forum and the United Nations Academic Impact Initiative."

As part of that effort, we decided to prepare a book dedicated to such ideas. We chose to title it, "Remaking the world – the Age of Global Enlightenment." The book would propose pathways toward a more humane, peaceful, and secure world, largely by harnessing the potential of Artificial Intelligence (AI), blockchain, and other Digital Age technologies. A key proposal is the adoption of an AI International Accord that would bind nations to constructive uses of AI and prohibit destructive uses. The book proposes a Social Contract for the AI Age as the theoretical and ethical foundation of the Accord. The book also proposes the AI World Society (AIWS) as a vehicle through which individuals and civic organizations can help foster an Age of Global Enlightenment. The joint effort of governments, institutions, organizations, and people is required if the world is to be reshaped to be a more humane, peaceful, and secure place.

I am grateful to the leaders and thinkers whose ideas inform the book. A special thank you is due to Ramu Damodaran for his support of the book project; Governor Michael Dukakis, who heads the Boston Global Forum and has inspired much of my work; Professor Thomas Patterson, who brought me to the Harvard Kennedy School's Shorenstein Center, co-founded the Boston Global Forum, and has been a constant source of friendship and advice; and Professor Nazli Choucri for her contributions to the book and the Boston Global Forum.

The book includes original documents, speeches and remarks delivered at conferences organized or co-organized by Boston Global Forum, and "white papers" on concepts and principles for AI and the Digital Age. I have organized the book into two sections. The first addresses the standards that should govern the development and use of AI and digital technology. The second explores what is needed to create a reimagined world. The appendices include related documents and photos from some of the events that contributed to what is contained in the book. Several of the book's chapters are documents that were multi-authored as part of the Boston Global Forum's effort to advance the ethical and productive application of AI. In the table of contents, these documents are identified as authored by the Boston Global Forum.

In preparing the book for publication, I had the assistance of Diane Tran, Larissa Zutter and Megan Wan. I am deeply thankful for their help.

Finally, I am thankful beyond words to Phan Thi Yen, my wife; my daughters Nguyen Thi Lan Anh and Nguyen Phan Nguyet Minh; and my son-in-law Hoang Trong Ton. A more supportive family is beyond imagination. They have helped at every step of my Boston journey, from the formation of the Boston Global Forum nine years ago to the preparation of this book. And I am deeply grateful for the lifetime of love and support given me by my mother Nguyen Thi Thanh Hong and father Nguyen Du. Their guidance and encouragement started me on the path of public service.

Boston, Massachusetts
May 21, 2021

Part I

Toward an Age of Global Enlightenment: AI Social Contract

01

Social Contract for the AI Age: Standards for a Peaceful, Secure, and Prosperous World

BOSTON GLOBAL FORUM

This Social Contract was developed by Boston Global Forum's Michael Dukakis, Vaira Vīķe-Freiberga, Vint Cerf, Nazli Choucri, Zlatko Lagumdzija, Tuan Anh Nguyen, Thomas Patterson, Alex Pentland, Marc Rotenberg, David Silbersweig

I. A New Social Contract in the Age of Artificial Intelligence

The term "artificial intelligence" refers to the development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, language translation, and self-driving cars. Advances in AI have already altered conventional ways of seeing the world around us. This is creating new realities for everyone – as well as new possibilities.

These advances in AI are powerful in many ways. They have created a new global ecology and yet remain opaque and need to be better understood. Advances in AI raise policy issues that must be assessed. We must now focus through dialogue, tolerance, learning and understanding on key principles and practices for an agreement among members of society for shared social benefit that we call the Social Contract for the AI Age.

The expansion of Artificial Intelligence is widely recognized and could change our lives in ways yet unimagined. At the same time, without guidelines or directives, the undisciplined use of AI poses risks to the wellbeing of individuals and creates possibilities for economic, political, social, and criminal exploitation.

The international community recognizes the challenges and opportunities, as well as the problems and perils, of AI. Many countries have announced national strategies to promote the proper use and development of AI. These strategies set out common goals such as:

- Scientific research, funding, and culture
- Sustainable development, and inclusive growth
- Skills, education, and talent development
- Public and private sector adoption
- Fairness, transparency, and accountability
- Ethics, values, and inclusion
- Reliability, security, and privacy
- Science-policy links
- Standards, human control, and regulations
- Data and digital infrastructure

AI is also the focus of foreign policy and international cooperation. There is a shared view that no country will be able to compete or meet the needs of its citizens without increasing its AI capacity. As well, many countries are now engaged in technology leapfrogging. It is no longer expected, nor necessary, to replicate the stages of economic development of the West—one phase at a time.

In a world as diverse as the one today, there are few mechanisms for responding to such possibilities on a global scale. Social Contract for the AI Age is designed to establish a common understanding for policy and practices, anchored in general principles to help maximize the "good" and minimize the "bad" associated with AI. Derived from the 18 century concept of a social contract—an agreement among the members of society to cooperate for social benefits—Social Contract for the AI Age focuses on the conditions of the 21 century. It is a response to artificial intelligence, big data, the Internet of Things, and high-speed computation.

Foundations

Just as earlier social contracts helped shape societies for a common purpose, the Social Contract for the AI Age has a transformative vision, one that transcends the technological features of artificial intelligence and seeks to provide foundations for a new society. Consider, for example, how the Covid-19 pandemic urgently requires a new society with new structure and order, approach -- new ways to share data and coordinate action, accelerated social reliance on digital service across businesses, education, and government services. The Social Contract for the AI Age would create standards for a new international system. It focuses on the conduct of each nation, relations with international business and not for profit entities, and the cooperation of nations. Just as TCP/IP is the platform for communication among internet users, the Social Contract for AI Age is a platform for connection among governments, stakeholders, and private and public institutions.

Objectives

The Social Contract for the AI Age seeks to build a multi-stakeholder, inclusive society in all aspects of life across politics, government, economics, business, and industry. The Social Contract for the AI Age values creation, innovation, philanthropy, and mutual respect. It seeks the right of freedom on, and access to, the Internet worldwide. The Social Contract for the AI Age seeks to make the world a locus of responsible interaction—a place where every person's contribution is recognized and everyone has a right to knowledge and access to information, where no one is above the law, where money cannot be used to subvert political process, and where integrity, knowledge, creativity, honesty, and tolerance shape decisions and guide policy.

In short, the Social Contract for the AI Age seeks to build a world where all are recognized and valued, and all forms of governance adhere to a set of values and are accountable and transparent. It is a world where global challenges are met by collective action and responsibility.

II. Principles

Extensive and appropriate AI application to politics, governments, society, and businesses can create a Smart Democracy. The Social Contract for the AI Age creates a platform for a Smart Democracy society, and a new global supply chain, named Supply Chain 2020. As a framework for society in the AI Era, the Social Contract for the AI Age is based on balancing power among governments, businesses, civil society, individuals, and AI assistants. The Social Contract for the AI Age is a commitment to protect property, common values, and collective norms.

1. AI must respect fundamental human rights such as human dignity, rule of law, and privacy protection.

2. AI systems must be considered from a multi-stakeholder perspective for the individual and for society as a whole

3. The Social Contract for the AI Age is a basis to achieve sustainable and inclusive development for a global community that is fair, equitable, and prosperous. It is designed to apply the concept of a people-centered economy and to create a trustworthy AI, data, and Internet ecosystem for work and life.

4. The Social Contract for the AI Age should be transparent and accountable, and follow standards based on policies driven by trustworthy data. The UN Sustainable Development Goals data metrics and the World Economic Forum Environmental, Social, and Governance (ESG) metrics, should provide citizens and organizations with reliable data that enables well-informed policy choices.

5. Communities must have control over their data. Data is the basis of self-determination and provides the ability to measure the impact of actions and policy in the AI realm.

6. Data literacy at all levels of society, together with open, trustworthy information, is the basis for an intelligent, thoughtful society.

III. Commitments of Stakeholders/Power Centers

1. Individuals, Citizens, Groups

Everyone is entitled to basic rights and dignity that are enhanced/promoted by AI.

Data Rights and Responsibilities

- Each individual has the right to privacy and is entitled to access and control over their own data. Individuals have a right to manage their data, individually or collectively, and the right to withhold their data from businesses.
- Each individual and each community must have access to a trustworthy AI, data, and Internet ecosystem to create an inclusive, fair, people-centered economy, and society.

Internet Rights

- Each individual has the right to access the Internet and any website or news system without restriction.
- Freedom of expression on the Internet is guaranteed.
- Secure digital identity allows the individual to know about, and control access to their data.

Education and Political Participation

- Each individual has the right to education through best available venues.
- Each individual must have access to education/knowledge/ training about the use and impact of AI.
- Each individual has the right to unimpeded political participation.
- Everyone must have access to due process and fair trial, as well as remediation for injustice.

Responsibility:

- Individuals are prohibited from exercising socially disruptive behaviors, such as hacking, disseminating disinformation or online hate.
- Individuals must contribute to the common good through appropriate taxes and provision of critical personal information (with appropriate data protection) as, for example, in the collection of census data and voting for public officials.

2. Governments

Governments have a leading role in the Social Contract for the AI Age.

All government should behave responsibly in the management of AI for governance and for interactions with individuals and such behavior must be easily auditable.

All governments should implement AI governance policies that respect honesty, transparency, fairness, and accountability. These standards and norms apply in every area of governance and are the basis for collaboration with international communities

All governments should create incentives for citizens to use AI in ways that benefit society (for example each person who does good work for society will be recognized as value, and this value can be exchanged with other values such as financial value, products, services, etc.).

All governments should construct a secure, stable, and trustworthy AI, data, and Internet ecosystem for work and life to support the people-centered economy.

All governments should ensure that communities are able to take control of their data and use AI with their data so that they can manage their community to suit their needs and to create prosperity for themselves and their family.

All governments should establish norms, rules, and pass laws to ensure AI benefits society.

All governments should create a secure safety net for citizens in a trustworthy AI, data, and Internet ecosystem for work and life.

All governments protect intellectual property rights without undermining free access to the information commons.

Collaborations between governments

Norms, values, and standards of the Social Contract for the AI Age are designed as connections among governments. To maintain the Social Contract for the AI Age, it is essential for countries to establish a Democratic Alliance for Digital Governance. All governments should work to promote the Democratic Alliance for Digital Governance.

United Nations and International Organizations

The United Nations should extend international human rights standards for AI and create a UN Convention on AI and establish a specialized UN Agency on AI.

3. Business Entities

Business operations and related rights come with accountability and responsibility – nationally and internationally.

Business must:

Enable independent audits for transparency, fairness, accountability, and cybersecurity.

Adopt common AI values, standards, norms, and data ownership rules with penalties for noncompliance.

Companies will be incentivized to do business only with companies and countries that uphold the Social Contract for the AI Age and endorse Supply Chain 2020.

Collaborate with governments and civil society to help create a people-centered AI, data, and Internet ecosystem, to create trustworthy and relevant data, and to use AI to share wealth with individuals and communities.

4. Civil Society Organizations & Community

Rights and responsibilities of civil society organizations

Include:

- Monitor governments and firms with respect to common values.
- Promote common values, norms, standards, and laws.
- Support AI users and assist them to serve the broad interests of society.
- Collaborate with governments, business entities, and others to create a people centered AI, data, and Internet ecosystem for work and life, enabling all people can create meaningful data, value, and create value-based wealth for their community.
- Enable data cooperatives—the voluntary collaborative pooling by individuals of their personal data for the benefit of the group or community.
- Participate in the making of AI rules and norms.
- Enhance civil society become an intelligent, thoughtful civil society based on knowledge, smart data, critical thinking, and social responsibility; and through the achievement of data literacy, to become a trusted open-data system, with validated, predictive AI tools that communities to plan their future.

5. AI Assistants

AI assistants provide an interface to facilitate compliance with established standards.

- Support AI users and assist them to serve the broad interests of society.
- Engage with other power centers for mutual support and supervision.
- Community control, AI assistants should be governed by communities of users.

IV. Implementation

The Social Contract for the AI Age will be implemented as follows:

The promulgation of a Code of Ethics for AI Developers and AI Users.

The creation of a system to monitor and evaluate governments, companies, and individuals (based on their contribution to maintaining norms, standards, common values, and international laws for honesty, transparency, accountability, and responsibility).

The recognition of the Social Contract for the AI Age by the United Nations, governments, companies, civil society, and the international AI community.

The establishment of a United Nations Convention on Artificial Intelligence to obligate governments and others to comply with international rules and norms to protect rights in AI Age.

The development of the Democratic Alliance for Digital Governance as the global authority to enforce the Social Contract for the AI Age.

The creation of the "AIWS City"—an all-digital virtual city based on the standards and norms of "the Social Contract for the AI Age", "People Centered Economy", "Trustworthy Economy", "AI-Government", and "Intellectual Society-Thoughtful Civil Society".

02

Framework for an AI International Accord

NAZLI CHOUCRI, MIT PROFESSOR

I. Emergent global Challenges

Advances in information and communication technologies – global Internet, social media, Internet of Things, and a range of related science-driven innovations and generative and emergent technologies – continue to shape a dynamic communication and information ecosystem for which there is no precedent.

These advances are powerful in many ways. Foremost among these in terms of salience, ubiquity, pervasiveness, and expansion in scale and scope is the broad area of artificial intelligence. They have created a new global ecology; yet they remain opaque and must be better understood—an ecology of "knowns" that is evolving in ways that remain largely "unknown." Especially compelling is the acceleration of Artificial Intelligence – in all its forms – with far-ranging applications shaping a new global ecosystem for which there is no precedent.

This chapter presents a brief view of the most pressing challenges, articulates the logic for worldwide agreement to retain the rule of law in the international system, and presents salient features of an emergent International Accord on Artificial Intelligence. The Framework for **Artificial Intelligence International Accord (AIIA)** is an initial response to this critical gap in the system of international rules and regulations.

II. New Reality - New "Unknowns"

The term "artificial intelligence" refers to the theory and development of computer systems able to perform tasks that normally require human intelligence—such as visual perception, speech recognition, decision-making, translation between languages, self-driving cars, and so forth. It also spans efforts to establish machine-human brain connectivity in ways that are highly exploratory and whose implications are yet to be articulated to any great extent.

We are at the beginning of a new era, a world of mind-machine convergence. Its current logic, situated at the frontiers of biological intelligence and machine intelligence, is generally anchored in past data and has made possible whole new sources and forms of design space. Fully understanding the scale of the AI domain remains elusive. We have seen a shift from executing instructions by humans to replicating humans, outperforming humans, and transcending humans.

Almost everyone appreciates that advances in AI have already altered conventional ways of viewing and managing the world around us. We have created new realities for everyone—as well as new possibilities. Nonetheless, when all is said and done, the "intelligence" that is "artificial" remains devoid of autonomous consciousness, empathy, and perhaps select other human features – such as ethics –so fundamental to humanity and the social order. It goes without saying that, sooner or later, humans will program machines to generate what we consider consciousness to be. Already we are seeing major efforts and assessments in that direction.

The expansion of Artificial Intelligence is widely recognized and could change our lives in ways yet unimagined. This expansion has created a new global ecology, one that remains opaque and poorly understood.

III. Call for Accord on Artificial Intelligence

The world of artificial intelligence today is framed by a set of unknowns – known unknowns and unknown unknowns – where technological innovations interact with the potential for the total loss of human control. Especially elusive is the management of embedded insecurities in applications of this new, ubiquitous technology and the imperatives of safety and sustainability.

But without adequate guidelines and useful directives, the undisciplined use of AI poses risks to the wellbeing of individuals and creates fertile ground for economic, political, social, and criminal exploitation. The international community recognizes the challenges and opportunities, as well as the problems and perils, associated with AI. Many countries have already announced national strategies to promote the proper use and development of AI. At the operational level, there are as yet no authoritative modes and methods for reviewing and regulating algorithms. This is yet another "open" space, in the full sense of the word.

We are now faced with a critical imperative, namely, to address head-on the policy issues raised by AI advances and to assess, evaluate, and respond effectively. We must engage in serious dialogue – buttressed by tolerance, learning, and mutual understanding – to converge on principles and practices of an agreement among members of the global society on a strategy to generate and enhance social benefits and wellbeing for all, shared by all.

At the core of this imperative is to establish a common understanding of policy and practice, anchored in general principles to help maximize the "good" and minimize the "bad" associated with AI. Given such ambiguities and uncertainties, it is not surprising that the international community has not yet fully grasped the implications of the new “unknowns” and the potential threats to the global order.

While individually, as well as jointly, these new capacities transcend the prevailing frameworks for maintaining order – nationally or internationally – on balance, the overall patterns appear not to generate a semblance of order. Some countries have developed national policies for the cyber domain, most notably regarding cybersecurity, Others may be in the process. Different countries may impose different measures, individually or collectively, but for the most part new innovations and novel applications remain largely unregulated.

We have created new tradeoffs that must be assessed. We must now focus on critical principles and essential supporting practices for the new and emerging world that we have created. We must also envisage fundamental “best practices” for realities that have yet to emerge.

1. Toward a Worldwide Consensus

We must now re-think and consolidate the best practices for human development, recognizing the power and value of the individual and of society. Much yet is to be done.

An added factor is that AI is also becoming a focus for foreign policy and international cooperation. There is a shared view that no country will be able to compete or meet the needs of its citizens without increasing its AI capacity. At the same time, many countries are now engaged in technology leapfrogging. It is no longer expected, nor necessary, to replicate the stages of economic development of the West—one phase at a time. While the possibilities are varied and diverse, there is also is a clear awareness of the challenges and opportunities, as well as the problems and perils of and many are seeking ways of managing their approach to AI. At least 20 countries have announced formal strategies to promote the use and development of AI.

No two strategies are alike; however, there are common themes even among countries who focus on different aspects of AI policy. The most common themes addressed include those pertaining to scientific research, talent development, skills formation, public and private collaboration, visualization for innovation, and data standards and regulation, among others.

Transcending the diversity of situations and orientations, there is a solid foundation of shared goals in the international community, buttressed by the activities of United Nations agencies to facilitate operational strategies and assist in implementation of objectives. These include a general appreciation of skills, education, and talent development, public and private policy innovation, attention to fairness, transparency, and accountability, ethics and values of inclusion, reliability, security and privacy, science-policy links, standards for regulations and data development, and digital infrastructure.

In sum, all countries are going through a common experience of adapting to and managing unknowns. All of these venues are generally framed within an overarching context of sustainable development. All of this creates an international atmosphere welcoming of an International Accord on Artificial Intelligence on a global scale.

2. Logic for AI International Accord

There is a long tradition of consensus-based social order founded on cohesion and agreement, and not the use of force nor formal regulation or legislation. It is often a necessary precursor for managing change and responding to societal needs.

The foundational logic addresses four premises: What, Why, Who and How?

What?

An international agreement on AI is about supporting a course of action that is inclusive and equitable. It is designed to focus on relationships among people, governments, and other key entities in society.

Why?

To articulate prevailing concerns and find common convergence. To frame ways of addressing and managing potential threats – in fair and equitable ways.

Who?

- In today's world, framing an international accord for AI must be inclusive of:
- Individuals as citizens and members of a community
- Governments who execute citizen goals
- Corporate and private entities with business rights and responsibilities
- Civil society that transcends the above
- AI innovators and related technologies, and
- Analysts of ethics and responsibility.
- None of the above can be "left out." Each of these constitutes a distinct center of power and influence, and each has rights and responsibilities.

How?

The starting point for implementation consists of five basic principles to provide solid anchors for Artificial Intelligence International Accord.

(1) Fairness and Justice for All

The first principle is already agreed upon in the international community as a powerful aspiration. It is the expectation of all entities – private and public – to treat, and be treated, with fairness and justice.

(2) Responsibility and accountability for policy and decision—private and public

The second principle recognizes the power of the new global ecology that will increasingly span all entities worldwide—private and public, developing and developed.

(3) Precautionary principle for innovations and applications

The third principle is well established internationally. It does not impede innovation but supports it. It does not push for regulation but supports initiatives to explore the unknown with care and caution.

(4) Ethics-in-AI

Fourth is the principle of ethical integrity—for the present and the future. Different cultures and countries may have different ethical systems, but everyone, everywhere recognizes and adopts some basic ethical precepts. At issue is incorporating the commonalities into a global ethical system for all phases, innovations, and manifestations of artificial intelligence.

Jointly, these four foundations – What, Why, Who, How – create powerful foundations for framing and implementing an emergent **Artificial Intelligence International Agreement.**

IV. Artificial Intelligence International Accord

The AIIA Draft Framework recognizes pathbreaking initiatives – notably the Budapest Convention on Cybercrime and the European Union General Directive – that signal specific policies to protect the integrity of information and the values that support this integrity. In addition, it recognizes the ongoing deliberations in the European Union regarding the future of AI and best means of supporting EU objectives, as well as those of member states. Then, too, the Draft Framework acknowledges the deliberations of the United States National Commission on Artificial Intelligence, and the Report of its results.

Consistent with the legal principle of a rules-based international community, the Draft Framework consists of several initial procedural and operational strategies, as follows:

(1) Preamble to highlight critical values and conditions to help clarify the underlying commonalities among all signatory entities supporting an AIIA of worldwide scale and scope.

(2) Framework Design to define the parameters of structure and process for further global deliberation and refinement.

(3) Operational Measures to buttress pragmatic as well as aspirational purposes, and Support System for realizing, formalizing and implementing an International as well as Global and International Accord on Artificial Intelligence.

Each calls for some articulation.

1. Preamble

The Preamble to the AIIA Framework is predicated on critical premises that reflect important features of the results-based system that defines today's international community, and are assumed to be operative at the drafting of the Framework. These are assumptions that enable framing of further order, and are stated as follows:

- Recognizing accelerated innovations in and applications of AI in diverse facets of the human condition. All advances and applications thereof must be coupled with, and adhere to, the internationally recognized precautionary principle.
- Supporting the international community's commitment to human rights. The potential harms on society inflicted by unrestrained uses of AI must be prevented in all contexts and situations everywhere.
- Convinced of the salience of rights, commensurate attention must be given to responsibilities.
- Understanding the differences and discrepancies among countries in computational skills and innovations in AI, a worldwide AI educational initiative must be designed to enable "full recognition" of all challenges surrounding AI.
- Respecting the diversity of the international community, all parties, public and private, all measures for implementation will be taken by national authorities.
- Acknowledging that that the dearth of guidelines may evolve into chaotic and undisciplined conditions that undermine benefits of AI to society by enabling exploitation and damage.

2. Framework Design

Consistent with the principles the provisions of the Budapest Convention on Cybercrime as well as the EU General Directives, and respecting the Social Contract for the AI Age, the AIIA draft framework is conceived and designed as:

- A multi-stakeholder, consensus-based international agreement to establish common policy and practice in development, use, implementation and applications of AI
- Anchored in the balance of influence and responsibility among governments, businesses, civil society, individuals, and other entities.
- Respectful of national authority and international commitments and requires assurances of rights and responsibilities for all participants and decision-entities.

To consolidate the design into a formal International Accord, it is essential to:

- Review legal frameworks for AI at various levels of aggregation to identify elements essential for an international AI legal framework.
- Recognize methods to prevent abuses by governments and businesses in uses of AI, Data, Digital Technology, and Cyberspace (including attacks on companies, organizations, and individuals, and other venues of the Internet).
- Consolidate working norms to manage all aspects of AI innovations, and
- Construct and enable response-systems for violations of rights and responsibilities associated with the development, design, applications, or implementation of AI

V. Process and Essential Measures

Given that "unrestricted use" of AI is not deemed acceptable by the international community, and a "total ban" may be unreasonable at this point, the Draft Framework for AIIA puts forth a set of measures for immediate review, assessment, refinement, and adoption by the international community. These measures are addressed to actors and entities.

1. Individual Rights and Responsibilities

The scope of rights includes:

- Rights pertaining to Data and the Internet
- Rights to digital and AI related education
- Rights to political participation in AI policy deliberations
- Right to avoid digital damages

And with rights, come responsibilities to:

- Avoid digital damages
- Contribute to the common good
- Participate in codes of digital ethics
- Remain cognizant of AI applications
- Refrain from use of malware or distribution of misinformation

2. Imperatives for National Policy

Governments are required to:

- Implement the AI governance policies, standards, and norms adopted by the international community
- Provide education for all citizens – "real" or online – with advanced AI technology
- Design incentives and directives for responsible AI use
- Protect intellectual property rights without undermining free access to the information commons

3. Collaborations among States

Inter-state collaboration is required to:

- Support shared AI policies and common goals
- Enable international measures by creating national policies and instruments
- Reinforce protection of human rights in AI innovations and uses
- Develop common principles and methods to contain and combat misinformation
- Recognize the Social Contract for the AI Age
- Establish a Worldwide Alliance toward Digital Governance

4. United Nations and International Organizations

These entities are expected to:

- Enable and support sustained data collection and analysis
- Provide guidelines for worldwide AI knowledge and education
- Create support systems for global digital ethics
- Establish international legal foundations for management of AI
- Convene all willing entities to participate in the framing and forging international judicial systems devoted to AI applications
- Contribute to the United Nations Centennial, notably a Global Enlightenment Prize and international Lecture
- Reinforce the AIWS City initiatives to develop and evaluate a People Centered-Economy

5. Business Entities

National and international business are expected to:

- Enable independent audits for transparency, fairness, accountability, and cybersecurity
- Adopt common AI values, standards, norms, and data ownership rules with penalties for noncompliance
- Collaborate with governments, civil society, and international organizations to help create a people-centered AI, data, and Internet ecosystem
- Support sanction-systems to enforce a rules-based international order

6. Civil Society

Rights and responsibilities of civil society organizations include:

- Monitoring governments and firms in support of common values and standards
- Enabling all forms of voluntary data, analytics and other cooperatives, including the pooling by individuals of their personal data for the benefit of the group or community, conforming to international norms
- Supporting an intelligent, thoughtful development and use of knowledge, as well as institutional opportunities for knowledge

VI. The Support System for AIIA Framework

Based on the internationally recognized Precautionary Principle, the support system for AIIA Framework is expected to facilitate and formalize the Framework and its implementation. The supports include the following products and processes:

- Code of Ethics for AI Developers and AI Users.
- Operational systems to monitor AI performance by governments, companies, and individuals
- Certification for AI Assistants to enable compliance to new standards.
- Establish a multidisciplinary scientific committee to provide independent review and assessment of innovations in AI and directives for safe and secure application, consistent with human rights and other obligations
- Enable a Social Contract for the AI Age to be supported by United Nations, governments, companies, civil society and the international community
- Consolidate World Alliance for Digital Governance as the global authority to enforce the emergent accord

VII. End Note:
Challenges, Opportunities, Next Steps

This End note addresses briefly some salient challenges, followed by highlights of opportunities, and concludes with a brief word of caution.

1. The Challenges

echnology and innovation are growing much faster than the regulatory framework anywhere, and most certainly at the international levels. Of course, we do not want regulations to change at the level of technological change – that would create chaos; you can imagine why and how.

We can expect innovations in AI to grow much faster than has been the case so far – due in large part to new generations being educated in AI early on. We tend to think that the key players are in the AI arena are companies, governments, and academic researchers. We are overlooking youth as the growth-asset that will buttress both society and AI in the decades to come. It is foolhardy to ignore what are likely to be the real challenges, namely, the scale and scope of (a) unknowns, and (b) unknown "unknowns," and (c) their intended and unintended consequences, individually and collectively.

2. The Opportunities

The international community has a long and effective record of framing and reaching agreement in almost all areas of interaction. These are especially powerful in areas of standards, quality controls, certifications and so forth. As a result, we should take stock of what we do know about what works best in different areas and domains.

Furthermore, how and why do we know what works best? These questions are designed to empower researchers, businesses, government agencies, and international entities – private and public – to address how and why? Then, too, given the known "unknowns," what should we know? We have an opportunity to mine our own records for the "best fit" with the properties and conditions surrounding the current Artificial Intelligence dilemma.

Among the major opportunities before us is to inquire: What is the best precedent? Is it nuclear power? Is it climate change? What are other high-risk areas? Usually, we respond to such questions long after the fact. But can we avoid this delay? At this point, we have an opportunity to seriously consider the properties of a global accord in AI before we are faced with a major disaster.

Of high value, for example, is to consider and address the role of ethics in courses on innovations in AI, as well as ethics for all uses and users. So, too, it is important to focus on international law relevant to AI. There are many other high-value issues to consider at this point. The reason is this: The lines of political contention are not yet clearly drawn among potentially conflicting perspectives (or countries).

Therefore, now is the opportunity to proceed before these are consolidated into "lines in the sand."

3. The Next Steps

At this point governments do not control AI innovation and/or diffusion. Much of the action taken is not in the public sector. Individuals and non-state groups matter and matter a lot. Constituencies are varied and overlapping. Consensus building is essential for society, not only for governments. Any position taken must be in the interest of everyone. Any initiative cannot be seen to dampen innovation or markets.

At the same time, we know from experience that "punishments"—in their various forms, do not work. We are in a world where large firms in the IT and communication business area are very powerful. Many are larger than most countries. The dilemma becomes: Whom to punish?

The immediate next step is establishing a multi-stakeholder support base. This is a necessary step to get to the point of articulation of interests and negotiations for "best outcomes."

We are now dealing with 21st century realities wherein state coalition building is essential. We could even initiate a global competition among young minds for creating the best international agreement on artificial intelligence.

03

An AI Ecosystem of Trust

URSULA VON DER LEYEN
PRESIDENT OF EUROPEAN COMMISSION

03

An AI Ecosystem of Trust

URSULA VON DER LEYEN
PRESIDENT OF EUROPEAN
COMMISSION

(From a speech to the Boston Global Forum, December 12, 2020)

Dear Governor Dukakis, Ladies and Gentlemen, It is such an honour to be here with you today. At the Michael Dukakis Institute for Leadership and Innovation, you are at the forefront of research and debate. And you definitely work on some of the world's most pressing issues. You drive the discussion on digital policy and how a human-centric approach on AI could look like. This is an issue whose importance simply cannot be overestimated. Today I would like to speak about our European perspective.

I am a tech optimist! I believe that science and technology have the power to improve our lives. When I studied to become a medical doctor, I learned that technology saves lives. Artificial intelligence can help identify cancers that used to go undetected. And modern robots can help to perform high-precision surgery that used to be too risky just a few years ago.

But of course, there is another side. Some of us are deeply concerned about the role which will be left for human beings in a world run by AI. Others worry about the serious effects that algorithms can have on the health of our democracies. Who is taking the final decisions? Who is steering the flow of information? Who is deciding on rules?

The world that we see through social media platforms seems real. But it is constructed. A list of search results seems objective. But it is different for each and every one of us. Steered by algorithms. Thousands of likes and retweets create a sense of unity. While we literally live in different worlds.

Yes, algorithms can be a danger to our democracy. But they do not have to be. We have the power to protect ourselves. This is why, next week, the European Commission will present its Digital Services Act to make sure that platforms are transparent about the way algorithms work. And that they take responsibility for their systemic effects. We just cannot leave decisions, which have a huge impact on our democracies, to systems, which are a black box for us. There must be at least transparency on how the algorithm works.

AI can have profound impacts on the life of the individual. AI may influence who to recruit for a certain post or whether to grant a certain pension application. For people to accept a role for AI in such decisions, they must be comprehensible. And they must respect people's legal rights – just like any human decision-maker must. This is why we have to be able to examine the workings of the system and to ensure human oversight. Our aim is to create an AI ecosystem of trust.

This is our European way of dealing with AI: Yes, Europe embraces innovation and entrepreneurship. And yes, we are eager to explore the full potential of AI for our industry and services. But we will never lose sight of those who are meant to benefit from these technological wonders – our citizens. What sets Europe apart from competitors like China is not the size of our tech sector or how attractive we are for venture capital. What sets Europe apart from competitors is the fact that our values come first. Human beings come first.

I am so honoured to receive this award today. For me this is also a very personal starting point for a great new beginning between the U.S. and Europe. A partnership that has been tested time and again. A partnership that today is needed more than ever, not at least in the digital world. The way we approach algorithms and AI will define the world we live in.

This is why the EU proposes to start work on a Transatlantic AI Agreement. We want to set a blueprint for regional and global standards aligned with our values: Human rights, and pluralism, inclusion and the protection of privacy. A transatlantic dialogue on the responsibility of online platforms!

Together, we could set the blueprint for other democracies facing the same challenges. To make sure that algorithms and AI are a force for good. Once again: I am delighted to be with you today!

To view President of the EU Commission Ursula von der Leyen's speech: https://youtu.be/Cy9jbwT0CEI or https://ec.europa.eu/commission/presscorner/detail/en/speech_20_2402

An AI "Bill of Rights" in the Digital Age

04

STAVROS LAMBRINIDIS
EU AMBASSADOR TO UNITED STATES

(From speech at Boston Global Forum Conference, April 28, 2021)

Dear Governor Dukakis, Dear Tuan Nguyen and Mark Rotenberg, Distinguished Members of the AIWS Committee, Ladies and Gentlemen,

Thank you for this distinction, which I accept with gratitude and humility. I am especially moved to receive it in the presence of Governor Dukakis, who not only epitomizes public service and leadership in this country but has also been a source of great pride in his ancestral one. Σας ευχαριστώ για τη μεγάλη τιμή που μου κάνετε, thank you for this high honor!

Introduction

Ambassadors, as is well known, are asked to speak about many topics for which they are not experts themselves. But in fact, Artificial Intelligence and human rights in the digital age are two topics that I have followed closely for a long time. They are a large portion of my current work as European Union Ambassador to the United States, and long before that, I followed these issues closely as a Greek Member of the European Parliament. While Vice President of the Parliament's civil liberties committee, I wrote the very first report on security and privacy in the digital age, exactly 11 years ago, when the topic was hardly as popular as it is today.

Perhaps my personal experience of growing up under a dictatorship in Greece endowed me with an acute awareness of the fragility of our open and free societies. As a child, I saw first-hand that even strong democracies can fall under authoritarian spells. I remember the dictatorship holding "files" on different citizens (including my parents), with personal information revealing their political activities and preferences, to be used against them, or to scare them into submission or complacency.

Perhaps this explains best why, when I look at the promise but also the challenges posed by digital technologies, I have always been guided by two fundamental principles, in politics and now diplomacy:

First – in real democracies, it is the people who should have the power to judge the thoughts and actions of their governments, and to hold governments and companies to account; not governments or companies who are supposed to observe and judge the daily actions or thoughts of their citizens. If the unrestrained use of technology leads to the latter instead of the former, we will have flipped Democracy on its head.

Second — In today's democracies, a "Big Brother" will materialize slowly and by stealth, not suddenly in the form of an authoritarian figure who takes away our rights in one fell swoop. If it happens, it will be gradual, by a thousand cuts, with our own explicit or tacit "consent," with our complacency.

In the mid 2000's, an example that illustrated the conundrum was the unfolding mass use of cameras in the streets. What should be their proper use? For regulating traffic? Sounds reasonable. Protecting us from terrorist attacks? Sounds reasonable too. But given that by their very nature they could be used on a 24-hour basis for many more things – identifying all participants at a protest in case just a few of them turned violent? Catching a pickpocket, in addition to a terrorist? – the question quickly became, "Where do democracies draw the line for the use of technology to avoid dangerous slippery slopes? What is necessary, appropriate and proportionate usage? Who should have access to the data and who should not? Where should such personal data be stored in order to be kept safe, and when should it be permanently deleted?" And, soon thereafter, similar questions started to be raised on the collection and use of citizens' personal data by major private companies and digital platforms as well.

The argument used by some governments and businesses at the time, the one that most troubled me, was: "If you have nothing to hide, you have nothing to fear." It troubled me, because it in essence encouraged the "innocent" to offer their consent to their very own unfettered surveillance, in the name of catching the few "guilty." If successful, it could indeed lead to the gradual and irreversible salami-slicing of our rights, "with our consent."

So what I would answer to that posed pseudo-dilemma was, "If you have nothing to hide, you don't have a life!" Because in fact, we all have thousands of elements of our private transactions, relationships, histories, or beliefs, all perfectly legal, that we do not wish others to have unrestricted access to.

That was then. The reality today is that we are all thinking about technology, innovation, and privacy quite differently than we did a few years ago.

We've seen — and are seeing more every day— that Americans want baseline privacy protections, that the status quo isn't good enough, and that the time is ripe for new actions to improve citizens' rights and trust in technology.

In Europe, we have always been forward leaning when it comes to the protection of privacy – perhaps for historic reasons – and withstood significant criticism for pioneering it in the beginning, not least of all with the General Data Protection Regulation (GDPR).

Without a doubt, we are a better and stronger Union today for the privacy safeguards we have in place. And we are now committed to seeing that our privacy protection also safeguards innovation and competition. Our economies and societies need both.

Artificial Intelligence

Whether you call it AI or machine learning, both – in the broadest sense – represent change. Change makes many of us uncomfortable, because it creates a new reality, something different from what we have come to know. It is easy to fear the unknown.

I will not lecture you on the textile revolution, the industrial revolution, or the introduction of the automobile. They represented massive shifts in our technological progress, and the economic benefits as well as the social upheaval that accompanied them are well-documented.

Artificial Intelligence is different, more complex, and far-reaching. In creating a tool that can make judgements – that can decide for us between multiple alternatives – we have introduced a new form of change into our daily lives. It is, if you like, change "to the nth power," scaling exponentially in a way we have not yet experienced.

As policymakers, citizens, and consumers – even as ordinary human beings – we must ask ourselves: Who do we want to make the rules for tools that are becoming increasingly embedded, invisibly, in the fabric of our society? How do we ensure that the AI embedded in the cars we drive, the buildings we use, the energy we consume, the health services we receive, the messages we send, the news we read, even in the refrigerators we use – is safe, controllable, unbiased, and trustworthy? That AI does not discriminate, is not used to "observe and judge," or to impinge on our universal human rights?

In the final analysis, how do we ensure that AI technologies enhance and protect our freedoms, our well-being, and our democracies rather than diminish them?

Europe's balance between Innovation and Fundamental Rights

In Europe, we believe that there is a clear interrelation between Innovation and Fundamental Rights – that one can promote the other.

We value, champion, and thrive from innovation. Last year, as the deadly COVID-19 pandemic spread rapidly across the globe, AI demonstrated its potential to aid humanity by helping to predict the geographical spread of the disease, diagnose the infection through computed tomography scans, and develop the first vaccines and drugs against the virus.

European companies and innovators have been at the forefront in every aspect of that effort. The winner of last year's Future Unicorn Award, presented annually by the European Union to start-ups with the greatest potential, was awarded to a Danish company, Corti, which uses AI and voice recognition to help doctors predict heart attacks.

Clearly, the possibilities and opportunities for AI are immense – from turning on wind turbines to produce the clean energy for our green transition, to detecting cyber-attacks faster than any human being, or cancer in mammograms earlier and more reliably than trained doctors. We hope that AI will even help us to detect the next infectious outbreak, before it becomes a deadly pandemic.

We want AI to do all of these great things. At the same time, just as in every technological evolution that has come before it, we must prepare for the unexpected. With the increasing adoption of AI, our rights to privacy, dignity, freedom, equality, and justice are all at stake. These are fundamental to our lives as Europeans and enshrined in the European Charter of Fundamental Rights.

If it is our aspiration to create machines that are able to do more and more of our thinking, selections and decision-making, we must also take care to ensure they do not make the same mistakes that we humans have been prone to make. Let me offer two examples to illustrate the point:

First

The use of facial, voice, and movement recognition systems in public places can help make our lives more secure. However, it can also allow governments to engage in mass surveillance, intimidation, and repression, as China has shown, in the most cynical and calculated way, in Xinjiang.

Second

The use of AI in recruitment decisions can be helpful. However, if a computer compares resumes of senior managers and concludes that being male is a good predictor of success, the data simply reflects bias – a bias within our society, which historically has favored men for leadership positions. We do not want AI to reinforce existing biases by copying and infinitely replicating them.

These are just two examples that illustrate why we must not become bystanders to the development and deployment of AI. If we, the major world democracies, do not move to establish a regulatory framework, if we do not move fast, smart and strategically to build alliances and set standards for human-centric, trustworthy, and human rights-respecting AI with countries big and small from all over the world, I dread to think who might.

EU Proposal for AI

In Europe, we have been thinking about these questions for many years now. We see that technology is an inescapable, necessary and desirable part of our future. But without trust in it, our progress as a society will simply not be sustainable.

Wearing both my Ambassador and European citizen hats, I am immensely proud that the European Commission has just presented a ground-breaking proposal for a regulatory framework on AI. It is the first proposal of its kind in the world, and it builds on years of work, analysis and consultation with citizens, academics, social partners, NGOs, businesses (including U.S. businesses), and EU Member states.

It is not a regulation for regulation's sake. It responds to calls for a comprehensive approach across the European Union to protect basic rights, encourage innovation consistent with our values, provide legal certainty to innovative companies, spur technological leadership, and prevent the fragmentation of our single market.
In terms of the scope, the draft regulation is actually quite limited. It will introduce a simple classification system with four levels of risk – unacceptable, high, limited, and minimal.

"Unacceptable" and thus prohibited AI practices are those which deploy subliminal techniques beyond a human's consciousness, such as toys or equipment using voice assistance that could lead to dangerous behavior, or the exploitation of the vulnerabilities of specific groups of persons due to their age, physical, or mental disability. Real-time remote biometric identification systems used in public spaces are also classified as an "unacceptable risk" – with extremely narrow exceptions when strictly necessary. As are "social scoring" practices, where governments "score" their citizens as opposed to the other way around.

When enacted, the regulation will also set binding requirements for a small fraction of so-called "high-risk" uses of AI, like credit scoring, sorting software for recruitment, verification of travel documents, robot assisted surgery, the management of critical infrastructure (e.g., electricity), or when an AI assists a judicial authority, to name a few practical examples.

The binding requirements ensure that in such cases, high-quality data sets are used, risks are adequately managed, documentation and logs are kept, and human oversight is provided for – in order to ensure the AI systems are robust, secure, and accurate.

In the end of the day, the purpose of the regulation is two-fold: (a) to ensure that Europeans can trust what AI has to offer and embrace AI-based solutions with confidence they are safe, while (b) to encourage innovation to develop in an ecosystem of trust. As the European Commission's Executive Vice President Vestager put it recently: "Trust is a must, not a 'nice to have.'"

As was the case with the General Data Protection Regulation, the Commission's AI proposal will be subject to legislative scrutiny before it can become law in all EU countries.

Transatlantic and Multilateral Context

Without a doubt, it will also be a topic of some debate here in the United States, as well. And the European Union looks forward to these discussions with our like-minded partners.

This is because, on the global stage, AI has become an area of strategic importance, at the crossroads of geopolitics and security. Having taken this pioneering step, the EU will work to deepen partnerships, coalitions and alliances with third countries and with likeminded partners to promote trustworthy, ethical AI. Exploring a Social Contract for the AI Age – a framework to ensure an AI "Bill of Rights" in the digital age – is fundamental in international relations today.

And in this work, our relationship with the United States is paramount. For Europe and the United States in particular, our shared values make us natural partners in the face of rival systems of digital governance. Together, we must rise to the occasion.

That is why President Ursula von der Leyen called for a Trans-Atlantic Agreement on AI that protects human dignity, individual rights, and democratic principles, to also serve as a "blueprint" for broader global outreach.

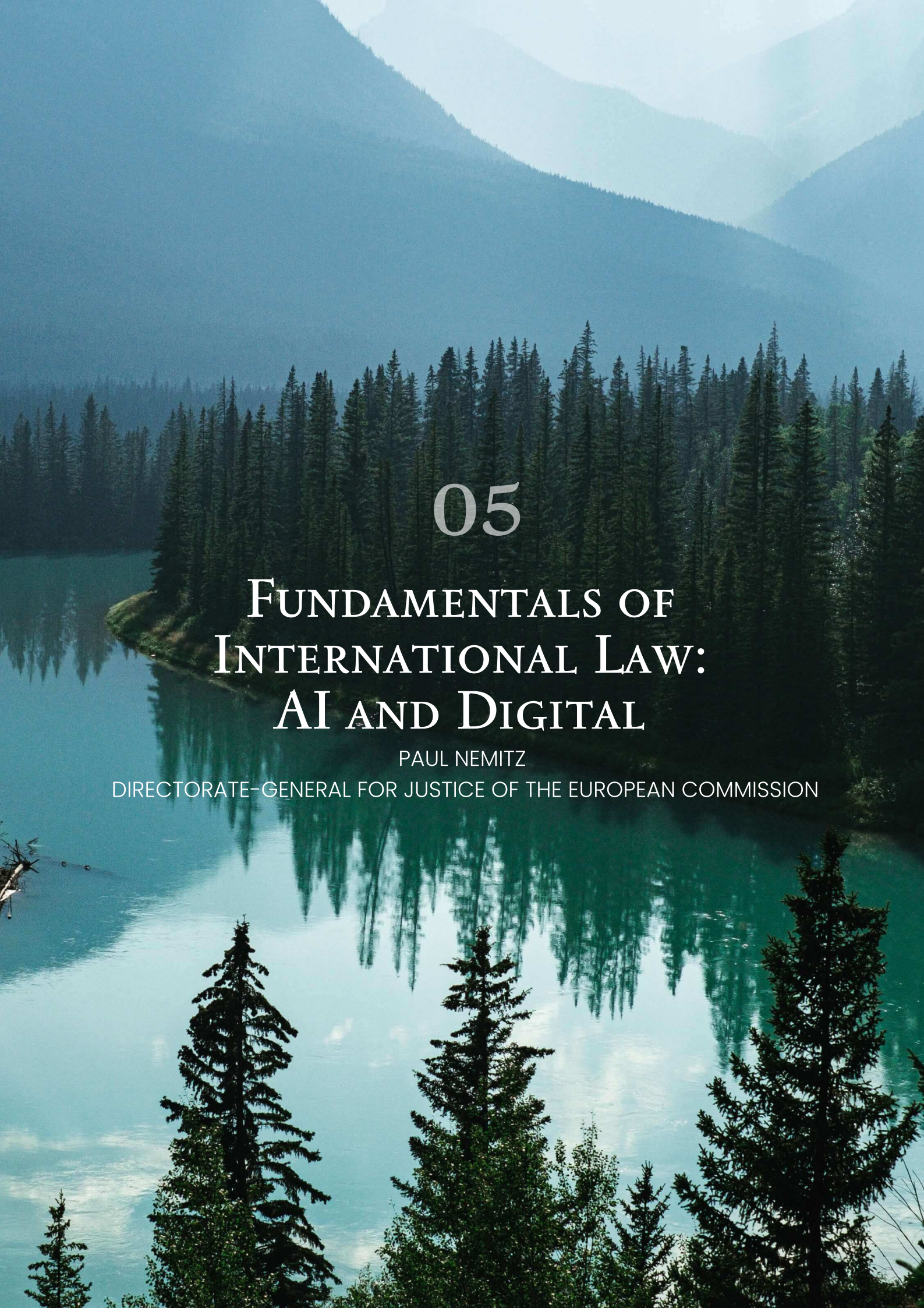
My hope is that Europe and the United States will work more closely together, continuously and at all levels – with engineers, policymakers, thought leaders, civil society, scientists, and businesses on both sides of the Atlantic – to guide our technological progress and help us improve, evolve, and become more just, equitable, and free societies. To help us ensure that AI enhances the human condition and experience for all mankind.

And I rely on all AI students and researchers, innovators, policymakers, and business leaders listening in today, to help us turn this aspiration into our new reality.

We have a window of opportunity to act – and we should do so. During my time as EU Ambassador to the United States, I will do all in my power to bring it about.

Once again, please accept my warm gratitude and appreciation for this award.

To view the full event where the speech was given:
https://bostonglobalforum.org/news-and-events/events/artificialintelligence-internationalaccord/



05

Fundamentals of International Law: AI and Digital

PAUL NEMITZ
DIRECTORATE-GENERAL FOR JUSTICE OF THE EUROPEAN COMMISSION

05

Fundamentals of International Law on AI

Paul Nemitz
Directorate-General for JUSTICE of the
European Commission

(Remarks of Paul Nemitz[1] at the Boston Global Forum Conference, April 28, 2021)

Let me give a few words of introduction of possible thinking on a global accord on Artificial Intelligence (AI).

First, because AI is predicted to be pervasive in all areas of society as a useful tool, whether in the sustainable management for and of the environment, education, health, police, justice and security and so on, one may be tempted to rewrite all the rules for society in such an accord. That of course then leads to the necessary tolerance and relativism which we find in the few very broad international agreements which reflect the different views of states on issues such as Human Rights and Democracy. That would be the classic approach to respect all the diversities of countries' views on how things should be going in this form of democracy or that form of democracy.

But we have an alternative to proceeding in this way in relation to AI due to the technical nature of the subject we are dealing with. What do I mean by this? The technical nature of the subject opens up parameters and categories on which I believe agreement is possible, very independent of the question of whether the signatory is a democracy or not and whether a state has this or that security or economic interest or this or that fundamental right in place or not. We should first search for those principles, which will be useful to all in the world in order to be able to agree on binding rules. I will give you some examples. For example, because of the technical nature of AI, we want to be certain in the future that an AI system really does what it is supposed to do. I would say that this is one of those generic principles, which is on a sufficient level of abstraction that everybody in this world could agree to it. In addition, it still would be a useful rule. Another principle would be that AI should never be developed or put on the market for the purpose of undermining the governability of States. So what I would encourage us to do in our ongoing work is to search together for those generic principles which are actually defining what is new in this international accord on AI rather than trying to rewrite all the general principles, ranging from the balance between security and fundamental rights right through to sustainability in environmental affairs, of all policy areas in which AI may be used or of all world accords which may have existed in history. I think we should focus on the new challenge, the technological nature of the challenge, and the new specificities of AI compared to previous challenges of humanity. My prediction is if we do this, we will find principles on which agreement in a binding form is more likely than if we choose to work on general principles on which the world community has only in very rare lucky historic occasions found the possibility to agree on binding rules.

My second remark is relating to the reason why one would want to have such a binding agreement. In the European Union we have moved on from a debate on Ethics for AI to a proposed legal regulation of AI by a parliamentary law. There was really a development of thinking moving from first the thinking that the law is not the right tool and binding rules are not amenable to be used for regulating such a technology. This was the early thinking which led the European Commission to set up a high-level group on AI Ethics. Also, the German government set up a high-level group on data ethics. All in all, we have today around 80 ethics codes around the world on AI. I don't want to speculate on who has put the money on this orientation on ethics rather than the law, for whom it was good and for whom it maybe wasn't, but one thing is clear. In the European Union the thinking has moved on from the conviction that ethics will be at the center as a tool to a recognition that AI needs rules which are binding for all, have democratic legitimacy and therefore also can be enforced against all, using public power. Of course, in terms of substantive principles we want to act ethically. But the Union has moved on to make a start to work on binding rules which are enforceable against everyone. This is significant. Why is this significant? Because we do believe that AI is so important in terms of its ubiquity but also in terms of the power it gives to the state and to private parties that we cannot only work with incentives, non-binding rules and the instruments we know from the OECD, such as ethics, self-regulation and non-binding recommendations. We already have an OECD code on AI principles to which many countries have agreed. We now have the work ongoing in UNESCO. We have work ongoing on some kind of global instrument in the Council of Europe which is the broader European organization to which Russia and Turkey belong. On occasion, the Council of Europe has actually produced binding rules, such as the Budapest convention on Cybercrime to which the United States has also signed up. I would say now we should be ambitious in our work also on AI. In terms of what we aim for, we see that we aim for a binding international agreement of the type of the United Nations Convention on the Law of the Sea (UNCLOS) which contains important elements of a binding nature and which includes also the instruments and institutions which are necessary to make sure that such binding rules are respected by all, such as a Court.

This will be my third remark. Is it right to take the multilateral agreement on the Law of the sea which is a United Nations agreement as a model for our work on AI? The multilateral agreement on the law of the sea is the biggest binding convention of the United Nations. I have in mind the comments which we heard from our first speaker, namely the ambition to have as many countries on board as possible as a precondition for such an accord working. I think that makes the law of the sea convention (UNCLOS) a great model. UNCLOS at the time was extremely innovative in dealing with a space which was largely unexplored, out there beyond the sight from the coast, 70 percent of the space on earth. States agreed on the rules of UNCLOS to ensure peace in this space and to allow an orderly and sustainable use of this space, the sea, by the world community. This is exactly the reason why I believe states should also be able and willing to agree on global binding rules for AI, namely to make it possible to use this technology in an orderly and sustainable manner, and in a way that contributes to peace on earth. The rules of UNCLOS are based on amazingly simple principles. They are binding in nature. They agreed because everybody understood that this new frontier, the oceans being at the beginning of exploitation by deep sea mining and so on, needs common rules to avoid conflict in the future. The United Nations and states went very far in this, even set up a court and a dispute settlement system. Pacem in Maribus, peace on the seas, was the motto, which got the negotiations on UNCLOS going, in the middle of the cold war. As at the time, I think we should have our ambitions high. We should go beyond just repeating non-binding types of principles, which we already find in the OECD code and in many ethics codes. We should focus on the specific nature of the technology which provides us with the opportunity to set out principles on which agreement is possible. We should aim for binding rules because we are dealing with power relations here. Power relations between states and private corporations. And in relation to individuals. Let us not forget that those corporations which are at the forefront of operationalizing AI, in terms of financial capacity, are bigger than many states of this world. So, I can imagine that many states actually have an interest in binding rules for this reason alone. We are dealing with power relations between the states and individuals, not only individuals of their own states. And power relations between corporations which use AI and people. These power relations and the risks involved are one of the key reasons why we are dealing in a binding way with AI in legislation in the European Union. We should recognize that this element of managing power from technology and controlling power from technology is one of the key challenges of the future. It underlies our willingness to come together in this group and look for global principles which help us to give a frame to this new power of technology, of AI, over people, over states, over resources, over security.

To close I recommend to everyone the new report from Bruce Schneier at the Belfer Center at Harvard University that came out this week, on AI as a hacking tool in the future.[2] He describes a world in which all binding principles, all decency, all systems of security which we may have in technical devices will be systematically undermined by AI systems which have been built for this purpose. So I do not believe that we need an agreement which becomes a marketing tool for AI. I do believe we underestimate the risks of AI. And I do believe here we have another principle which we will find agreement on by many. Namely, that AI which has this "purpose to undermine" as described by Bruce Schneier should be ruled out, namely AI which serves as a tool for criminal purposes or to undermine governability of states.

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1. *The author expresses a person's opinion and not necessarily that of the European Commission*
2. *The coming AI Hackers, April 2021, https://www.belfercenter.org/publication/coming-ai-hackers*

To view the full event at which the remarks were delivered: https://bostonglobalforum.org/news-and-events/events/artificialintelligence-internationalaccord/

06 AIWS 7-Layer model (BGF-G7 Summit Report 2018)

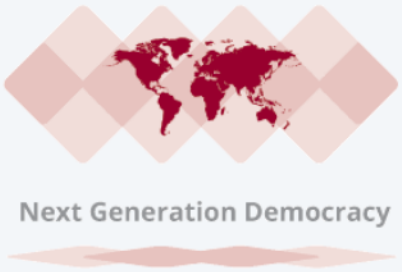
BOSTON GLOBAL FORUM

The model was developed by Boston Global Forum's Michael Dukakis, Nazli Choucri, Allan Cytryn, Alex Jones, Tuan Anh Nguyen, Thomas Patterson, Derek Reveron & David Silbersweig.

AIWS

AI WORLD SOCIETY

The Artificial Intelligence World Society (AIWS) is a set of values, ideas, concepts and protocols for standards and norms whose goal is to advance the peaceful development of AI to improve the quality of life for all humanity. It was conceived by the Michael Dukakis Institute for Leadership and Innovation (MDI) and established on November 22, 2017. The World Leadership Alliance – Club de Madrid (WLA-CdM) and the Boston Global Forum (BGF) are partnered with the MDI to collaborate and develop the AIWS initiative. The President of WLA-CdM, Vaira Vike-Freiberga, serves as co-chair of AIWS activities and conferences along with Governor Michael Dukakis.



The Next Generation Democracy (NGD) is an initiative founded by WLA-CdM with the goal of "enabling democracy to meet the expectations and needs of all citizens citizens and preserve their freedom and dignity while securing a sustainable future."

NGD is a collaboration and forum, coordinated by WLA-CdM. AIWS has partnered with WLA-CdM to promote the development of AI to support the Next Generation Democracy initiative.

To align the development of AI with the NGD initiative, the AIWS has developed the AIWS 7-Layer Model. This model establishes a set of responsible norms and best practices for the development, management, and uses of AI so that this technology is safe, humanistic, and beneficial to society.

In developing the 7-Layer Model, the AIWS recognizes that we live in a chaotic world with differing, and sometimes conflicting, goals, values, and concepts of norms. Hence, the Model is aspirational and even idealistic. Nonetheless, it provides a baseline for guiding AI development to ensure positive outcomes and to reduce the risks of pervasive and realistic risks and the related harms that AI could pose to humanity.

The Model is based on the assumption that humans ultimately accountable for the development and use of AI and must therefore preserve that accountability. Hence, it stresses transparency of AI reasoning, applications, and decision making, which will lead to auditability and validation of the uses of AI systems.

LAYER

01

Charter and Principles

To Create A Society Of AI For A Better World And To Ensure Peace, Security, And Prosperity

AI "society" is the society consisting of all objects that have the characteristics of Artificial Intelligence. Any object in this society is an AI Citizen. There must be rules that govern the behaviors of these AI Citizens, as there are rules that govern human members of society. The standards and requirements for an AI citizen must also include the need to manage and supervise them. AI citizens are to be transparent in structure and process, and all are to meet AIWS Standards of AI citizenship.

- AI Citizens cannot threaten or put at risk the health, safety, dignity, and freedom of any human.
- AI Citizens cannot take actions which violate the law and social norms of the societies in which they are deployed.
- The design and performance of an AI Citizen must be sufficiently transparent so as to expose its behavior and ensure that its behavior will not imperil in any way other AI Citizens or humans, nor violate the law and social norms of the societies in they are deployed.
- The performance of AI Citizens must meet basic standards of auditability and subject to regular audits to facilitate compliance with the above.

Layer 1 establishes a responsible code of conduct for AI Citizens to ensure that AI is safely integrated into human society.

LAYER

02

Ethical Frameworks

Guidelines For The Role Of AI In Building The Next Generation Democracy

The behavior of AI Citizens must be ethical by normal human and social standards. It must conform to the ethics codes of UNESCO and of the United Nations as whole. To be considered ethical, such behaviors must be:

- Honest, open, and transparent.
- People-centric: for the people, by the people, serving the people.
- Respectful of the dignity of humans, their privacy, and the natural environment.
- Deployed in the service of individuals, groups, and governments that are themselves ethical.
- Promote and foster tolerance.

Layer 2 is based on the ethics of codes of the UN and UNESCO. Therefore, AI citizens must, first and foremost, respect human dignity, virtue, and ethics. The ethics layer will also draw on best practices and ethics codes of top businesses and organizations involved in AI research such as IBM, IEEE, the Berkman Center, and MIT Media Lab.

LAYER

03

Standards

Standards For The Management Of AI Resources And Development

> Establish the AIWS Standards and convene the Practice Committee to develop, manage, and promote standards and all critical requisites of an AI citizen.

> The Committee will engage with governments, corporations, universities, and other relevant organizations to facilitate understanding of AI threats, challenges etc. These entities are ultimately responsible for achieving ethical AI.

Layer 3 is focused primarily on AI development and resources, including data governance, accountability, development standards, and the responsibility for all practitioners involved directly or indirectly in creating AI.

Laws and Legislation

Laws For The Role Of AI In Building Next Generation Democracy

LAYER
04

Advise political leaders in crafting the best possible rules, regulations, and legislation regarding AI technologies.
This layer will follow and apply Layers 1, 2, and 3 to transform these into legal and legislative concepts.

Layer 4 focuses on policies, laws, and legislation, nationally and internationally, that govern the creation and use of AI and which are necessary to ensure that AI is never used for malicious purposes. There is great danger in the risk of AI development, devoid of the appropriate ethical and regulatory frameworks. Public and private entities are already considering ways to regulate AI. Regardless of what they may accomplish, there is further risk that the rate at which AI advances will outpace the continuing development of these frameworks. The goal of this layer is to guide leaders in these endeavors so that their work is effective and timely.

LAYER

05

International Policies, Conventions, and Norms

Global Consensus

To be effective, the development of AI in the support of humankind depends on a global consensus. International conventions, regulations, and agreements for AI development in support of Next Generation Democracy are therefore essential for the success of AIWS.

This layer will promote the adoption of the AIWS ethics, standards, and legislative proposals consistent with, and integrated in, international law through conventions, regulations, treaties, and agreements.

Layer 5 will focus on the global application and diffusion of AIWS-established norms and concepts. The responsible development and use of AI depend on acceptance by the global community. If even one state or actor uses AI irresponsibly or maliciously, the threat they could pose would be significant, and cannot be accepted, consensus.

AIWS also calls upon the leaders of all G7 nations to sign an agreement on the Ethical Development and Deployment of AI. Such an agreement would prohibit the development of autonomous AI weapons and mandate that AI be developed only for peaceful purposes. The threat posed by a potential AI arms race is alarming and states must take action now to prevent such a possibility.

LAYER 06

Public Services and Policymaking

Engage And Assist Political Leaders

AI can itself be used to aid in achieving the legislative and policy goals that promote its peaceful and constructive use. It can assist political leaders in effective and practical decision-makings by providing AI-based evaluations, data, and suggestions to solve social and political issues. This will ensure that all parties are informed and make the best decisions possible.

This layer will help to shape applications for Next Generation Democracy.

Layer 6 emphasizes the role AI should play in providing analysis and data to inform political leaders. While AI per se cannot perform the functions of leadership, they will prove invaluable assets by providing assistance for human leaders. Examples of current AI projects for policymaking include SAM, the world's first AI politician, created and operating in New Zealand, and GROW360 in Japan.

LAYER 07

Business Applications for All of Society

Engage And Assist Businesses

As AI is deployed to be used by business, industry, and private citizens, it is essential that AI-technologies remain benevolent and free from risks of misuse, error, or loss of control. Therefore, it is imperative to work with the private sector in developing best practices for the applications of AI in society.

Layer 7 emphasizes the applications of AI and the services it can (and does) provide to citizens. AI is already being sold to, or tested for, consumer use in a variety of sectors. This includes fully autonomous vehicles, smart home assistants (e.g., Alexa and Google Home), and others. It also includes more subtle uses in social media, aviation, and other large sectors. With AI becoming more integrated in the lives of the average citizen, the technology will increasingly change our society.

Through Layer 7, and the Model as a whole, AIWS hopes to ensure that inviting AI into our lives will have positive effects.

Plan 2020 and the Future

By February 20, 2020, all seven layers of the Model will be completed. Future applications and users of the final Model: AIWS International Court, AIWS University, AIWS Healthcare, AIWS Public Transportation, AIWS Policy Makers, and AIWS Political Leaders. These applications will ensure that AIWS norms for AI are adopted broadly and responsibly.

Next Steps: Actions to be Taken

The AIWS Standards and Practice Committee is established to:

- Update and collect information on threats and potential harm posed by AI
- Connect companies, universities, and governments to find ways to prevent threats and potential harm
- Engage in the audit of behaviors and decisions in the creation of AI
- Create both an Index and Report about AI threats - and identify the source of threat
- Create a Report on respect for, and application of, ethics codes and standards of governments, companies, universities, individuals, and all others
- Work with the UN to call for an AI Peace Treaty, to AI, similar to the Chemical Weapons Convention that prohibits the creation, stockpiling, and use of those weapons
- Work with AI experts on a consensus announcement that "AI experts not engage in any work for, or participate in projects developing AI weapons".

07

AIWS Report about AI Ethics (December 2018)

BOSTON GLOBAL FORUM

07

AIWS Report about AI Ethics (December 2018)

BOSTON GLOBAL FORUM

(Written by Boston Global Forum's Michael Dukakis, Nguyen Anh Tuan, Thomas Patterson, Thomas Creely, Nazli Choucri, Paul Nemitz, Derek Reveron, Hiroshi Ishiguro, Eliot Weinman, and Kazuo Yano)

Part I: Introduction to the AIWS Report about AI Ethics

Governments of large countries have significant influences over the development of the world. Therefore, the lack of consistency and consensus in concepts, values, and systems as well as the lack of mutual trust and cooperation between governments would likely endanger humanity in the Artificial Intelligence era.

AI can be a useful tool for humanity, helping humans develop better and overcoming the weaknesses of existing political systems. Some political systems, though being shown with greater efficiency and better results, still possess limitations and shortcomings that need correction or examination. So, what should be done to ensure cooperation between major governments given the conditions of uncertainty and complexity in the AI ecosystem? In this case, a unified vision of building ethical AI is needed so that governments can use AI as an effective tool to create better political systems to the benefits of their citizens.

Concepts and principles to create standards needed to follow the ultimate goals: for the people, for the human race, for the civilization and happiness of humanity. There must be common standards for an AI society around the world, from technology, laws, conventions, etc. to guarantee the interoperability among different frameworks and approaches between countries.

It is the openness among countries that create beliefs, which are based on unified values, laws, and conventions, which cannot be explained in its own way nor can it be assumed that each country has its own particularity to deny respect for common standards. If we do not reach a common accord of respect for the norms, laws, and conventions in the AI world, there will be no sustainable peace and security for humanity in the future. That is also the core content for an AI Accord between governments that Governor Michael Dukakis told the Associated Press on August 9, 2018.

Part II: Overview of Government AIWS Ethics and Practices Index

The concept of AI-Government was developed at the Michael Dukakis Institute for Leadership and Innovation through the collaboration of Governor Michael Dukakis, Mr. Nguyen Anh Tuan, Professor Nazli Choucri, and Professor Thomas Patterson and first presented in the AIWS Conference in 2018. However, to guarantee the interoperability among different frameworks and approaches of governments and deal with normative differences among contexts and geographies, a model to develop, measure, and track the progress of ethical AI policymaking and solution adoption amongst governments is needed.

The AIWS Report about AI Ethics, therefore, proposes the model of Government AIWS Ethics and Practices Index and looks at the strategies, activities and progresses of major governments (including G7 countries: Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States and other influential countries such as Russia, China, India) in the field of AI.

Government AIWS Ethics and Practices Index

This index measures the extent to which a government in its Artificial Intelligence (AI) activities respects human values and contributes to the constructive use of AI.

The Index has four categories:

01 Transparency

Substantially promotes and applies openness and transparency in the use and development of AI, including data sets, algorithms, intended impacts, goals, purposes. This ethic applies to individuals, corporations, academic institutions, and governments.

02 Regulation.

Has laws and regulations that require government agencies to use AI responsibly; that are aimed at requiring private parties to use AI humanely and that restricts their ability to engage in harmful AI practices; and that prohibit the use of AI by government to disadvantage political opponents.

03 Promotion.

Invests substantially in AI initiatives that promote shared human values; refrains from investing in harmful (and exploitative) uses of AI (e.g., autonomous weapons, propaganda creation and dissemination, social control).

04 Implementation.

How governments seriously execute their regulations, law in AI toward social good. Respects and commits to widely accepted principles and rules of international law. Promotes and engages with non-profits, academic institutions, and corporations collaborate and establish ethical AI principles. Ensures AI is developed and used in line with basic principles of Democracy, Human Rights and the Rule of Law.

Methodology

Governments will be assessed in each category by the standards of the moment. AI is in an early stage, and governments are only beginning to address the issue through, for example, laws and regulations. Later on, as governments have had more time to assess the implications of AI, more substantial efforts will be expected—for example, a more fully articulated set of AI-related laws and regulations.

Criteria For Evaluation And Control Of Ethics In AI:

01
Purpose

The purpose of AI is to achieve well-being and happiness of the people, to unleash the limitless possibility of humans, to provide more freedom to people, released from the constraints of resources and from inflexible rules/processes, and to solve important issues faced by mankind, such as SDGs.

- Building and use of AIs and AI-related activities aligned with the positive purposes of AI, listed above, are encouraged, and promoted.

- By contrast, AIs and AI-related activities departing from the positive purpose, i.e. to have detrimental effects on well-being and happiness, to restrict the limitless possibility of humans, to provide less freedom to people with constraints of resources and inflexible rules/processes, and to be the obstacles to solving the important issues faced by mankind, such as SDGs, are discouraged and suppressed.

02 Data sets

How to collect, where, whom, for what, by what. Data sets using for AI require accuracy, validation, and transparency.

- Disclose what data they collect, from which sources, how data is collected (techniques & models) and will be used, the purposes for which it is used.
- Have methods to encourage the development of testing data sets.
- Clearly communication and publicize governance programs or risk assessment tools to detect and remedy any possible discriminatory effects of the data and models used.

03 Algorithm

Transparency, fairness, non-bias

Accountable algorithms must follow proposed principles: responsibility, transparency, accuracy, auditability, and fairness. The collection, use, and management of data by AI algorithms should follow ethical principles that promote fairness and to avoid unjust impacts on people, particularly those related to sensitive characteristics such as race, ethnicity, gender, nationality, income, sexual orientation, ability, and political or religious belief.

04 Intended impacts

for what, for whom, goals and purpose

- Clearly communication about intended impacts of developing and using AI. Avoid AI implementation that cause or contribute to adverse impacts to human.
- Seek to prevent or mitigate adverse impacts to human. Provide for effective remediation of any impacts caused by data practices.
- Procure and deploy risk assessment tools to govern their adoption and create frameworks for assessing impact.

05

Transparency in national resources

- Publicize the identity of responsible departments for AI policy, and government AI projects' implementation.
- Publicize expenditures, the state budget on AI issues

06

Refrains from investing in harmful uses of AI

Do not design or deploy AI in the following application areas: Weapons or technologies that are likely to cause harm to humanity, have purpose of causing or facilitating injury to human, technologies that gather or use information for surveillance violating internationally accepted norms, or technologies that are against widely accepted principles of international law and human rights.

07

Transparency in decision making

It must be clear when AI systems need to explain their actions to humans to show why a decision was made, and when, if ever, such transparency is not necessary.

Ensures AI is developed and used in line with basic principles of Democracy, Human Rights and the Rule of Law. The political ethics of developing AI as a key tool to serve and strengthen Democracy, Human Rights and the Rule of Law, rather than allowing AI or even intentionally developing it to undermine.

08

Avoiding bias

Steps must be made to stop systemic bias. Core values such as equality, diversity and lack of discrimination must be promoted.

09

Core ethical values

What are the core ethical values of AI to be?

10

Data protection and Intellectual Property

The importance of data protection, IP ownership and cyber security must be recognized and balanced against the need to use data to promote innovation.

11

Mitigating social dislocation

The codes should confront what obligations rest on actors who deploy AI to mitigate the social dislocation that results.

12

Cybersecurity

The need for strong protection against hacking will increase as AI systems take a heightened role in society.

Part III: Announcement of the Government AIWS Ethics Index at AIWS Festival 2019

On April 25, 2019, the Michael Dukakis Institute for Leadership and Innovation will organize the AIWS Festival event at Loeb House, Harvard and publish the Government AIWS Ethics and Practices Index. This is the focused work which belongs to the AIWS Initiative developed by the Michael Dukakis Institute in cooperation with AI World and influential researchers in the field.

On this event, the Michael Dukakis Institute hope to propose to global government leaders, but first and foremost, to heads of G7, OECD countries and countries with a population of over 80 million – the pioneers in the industrial revolution we are currently embarking on. We hope that government leaders from G7 & OECD countries would consider apply the Government AIWS Ethics Index and in the near future, the index will contribute to the global consensus in AI development.

We also hope to make contribution to the notion of dealing with these AI international problems through the United Nation. It is the United Nations, who plays a key role in regulating the actions of governments as well as people towards the aim of maintaining international peace & security and promoting co-operation between countries.

08

AIWS Model
The Next Generation Democracy
(AIWS-G7 Summit Initiative, April 2019)

BOSTON GLOBAL FORUM

08

AIWS Model
The Next Generation Democracy
(AIWS-G7 Summit Initiative, April 2019)

BOSTON GLOBAL FORUM

(Report written by Boston Global Forum's Michael Dukakis, Nguyen Anh Tuan, David Bray, Nazli Choucri, Thomas Creely, Paul Nemitz, Thomas Patterson, David Silbersweig, Vaira Vike-Freiberga, and Kazuo Yano)

I. AIWS Model

The world has entered what has been labeled the New Society and Economy Revolution, one that is centered on Artificial Intelligence (AI). Some analysts have predicted that it will be hugely disruptive, that machines will take over jobs now done by people, and that the resulting efficiencies will result in a shrinking of workplace opportunities. Other analysts note that previous industrial revolutions created unanticipated opportunities with the result that the disruptive effects were offset by creative responses.

Largely neglected in assessments of AI's impact are the possibilities it presents for improving governance – in all its forms. This brief addresses this topic, looking into the future from the perspective of how it could strengthen government functioning and how it could contribute to a more responsible and empowered citizenry. We use the term AI World Society (AIWS) to describe the future shape of governance.

The AIWS Model envisions a society where creativity, tolerance, democracy, the rule of law, and individual rights are recognized and promoted; where AI is used to assist and improve government decision-making; and where AI is a means of giving citizens a larger voice in their governing.

The Boston Global Forum is presenting this brief to the G-7Summit in recognition of its members' leadership in technology, innovation, democracy, rule of law and the protection of rights of individuals. They are among the countries best situated to be pioneers in the proper use of AI in governing.

AIWS is an initiative of the Boston Global Forum and is being developed in collaboration with the World Leadership Alliance-Club de Madrid (WLA-CdM).

The WLA-CdM is the world's largest assembly of democratic former heads of state and government. They offer their experience, convening power, and access to current leaders to address today's global challenges, focusing on and fostering democratic values and leadership worldwide. The Boston Global Forum is currently working with the World Leadership Alliance-Club de Madrid on the role of AI in democratic government.

The two institutions will be collaborating on a first discussion on AI and democratic governance that will take place in Vietnam in July 2019. In October, the WLA-CdM will be organizing its 2019 Policy Dialogue on Technological Transformation and the Future of Democracy: How can Artificial Intelligence drive democratic governance? It will take place in Madrid with the participation of the Boston Global Forum. Both discussions are part of WLA-CdM's Next Generation Democracy initiative, a program aimed at better enabling democracy to meet the expectations and needs of all citizens, preserving their freedom and dignity while securing a sustainable future. The Boston Global Forum will share the findings.

II. AI And Government (AI - Government)

Overview

Government is the use of communication and information technology for improving the performance of public sector agencies. AI-Government transcends E-Government by applying AI to assist decision making for public sector functions – notably provision of public services, performance of civic functions, and evaluation of public officials.

AI-Government Model

At the core of AI-Government is the National Decision Making and Data Center (NDMD). NDMD collects, stores, analyzes and applies massive amounts of data relevant to the provision of public services and the evaluation of public programs and officials. IT does not replace governance by humans or human decisional processes but guides and informs them, while providing an objective basis for service provision and evaluation.

NDMD is a centralized system for data collection and analysis, through which government services are evaluated, coordinated, and allocated. However, local governments are a key component of the model. Many of the services are delivered through local units, which also provide data for the NDMD and, through interaction with the local population, serve as a feedback mechanism that informs centralized decision making. AI supported public services would span major policy functions, including:

- AI for healthcare, social services
- AI for law, legal services.
- AI for education
- AI for tourism
- AI for public transportation
- AI for labor
- AI for agriculture, fishing, and natural resource management
- AI for public finance.

Goals of AI-Government

Pursuit of AI-Government by a government who would improve both the quality of its public services; would increase the efficiency and accountability of its administrative unit and personnel; would place it at the forefront of the AI age, enabling it to be a model for other countries; would stimulate the development within its borders of AI experts and firms; would improve the AI literacy of its population; would contribute to the development of norms and standards governing the development and use of AI; and would contribute to an AI culture that encourages and recognizes innovation, creativity, and dedication.

Structure of AI-Government

National Decision Making and Data Center (NDMD)lies at the core of AI-Government. NDMD is the "brain" that supports AI decision-making and is a signature feature AI-Government. IT would link to all units of government and would collect data from ministries, departments, sub-national governments, cities and towns, schools, and other administrative units. NDMD would serve as the basis for automated public service functions. IT would be a broad-based support system for public sector decision-making.

Tasks required to Develop AI-Government

To create AI-Government, a country would need to pursue numerous tasks, including:

- Building a National Decision Making and Data Center (NDMD)
- Creating regulations for automated public services
- Providing mechanisms to evaluate the performance of leaders or officials
- Facilitating feedback from civil society
- Setting rules for decision making in all units of government
- Setting regulations to collect data from all levels of government
- Setting rules on the protection of personal data, self determination and privacy.
- Setting rules on the incorporation of democracy, fundamental rights, and the rule of law in the design of AI programmes used in the context of AI Government
- Establishing the right to human decision making, thus providing a basis of appeal to adverse automated decision making and granting the right to a full explanation of the functioning, purposes and impact of any automated decision making program.
- Establishing an AI audit and competence center for respect for these rules and assist the judiciary and the legislature with technical support and explanations of any AI system, and carries out detailed compliance audits on demand.
- Establishing a task force for implementation and evaluation.
- Creating automated public services assisted by AI in areas such as health, education, legal services, public transportation, tourism, labor, agriculture, public finance, and public housing.

Early Strategy for Developing AI-Government

A first step in the development of AI-government would be assembling visionary experts who understand what it would take to create an implement AI-Government. Planning for the NDMD would also be an early priority, given the central place it will occupy in AI-Government. Bringing other actors (firms, universities, thinktanks, non-governmental organizations, etc.) into the process at an early stage would also be a priority, both to get their perspectives and cooperation in the effort.

The AIWS Index for Government

AI-Government is accompanied by an AIWS Index, which would serve as a metric for assessing a country's progress toward AI-government. The Index includes a number of components, weighted differently by the level of importance. The Index would be scored in a way that countries would rank higher when their AI initiatives promote more efficient and equitable services, respect core principles of data protection and protection of privacy, foster tolerance, innovation and creativity, encourage citizen participation and empowerment, and contribute to the advancement of the rule of law, democracy, and fundamental rights. Among the factors to be taken into account when assessing a country's government through the AIWS index are:

- Transparency. Ethical codes, standards, laws, regulations, structures, algorithms, practices, etc. are publicly available. Equally, all AI programs are publicly available and auditable of the data collected, subject only to data protection and privacy rules.
- Compliance. Degree to which the government adheres to the ethical codes, standards, laws, etc. pertaining to AI-Government and the degree to which government officials and the judiciary enforce rules in society and protect the rights of individuals.
- Implementation. Progress in developing and implementing AI-Government. Non-discrimination. Degree to which AI-government is based on principles of equal opportunity – that it is not designed to advantage or disadvantage particular citizens, firms, groups, etc.
- Justice: Degree to which AI-government fights poverty and unequal distribution of income, opportunities, and justice in a society.
- Integrity. Degree to which AI-Government constrains corruption, briery, piracy, etc.
- Education. Degree to which the government educates citizens in AI practices and in behaviors, such as tolerance, innovation and creativity, that promote social progress and inclusivity.
- Universality. Degree to which AI-Government extends and reaches out to all people in the country.
- Empowerment. Degree to which AI-Government enhances citizen participation and citizen control of government.

III. AI-CITIZEN

AI-Citizen Definition: AI-citizen refers to people who live and work legally in a country and who respect the common global values set forth by the United Nations.

AI-Government affects the public through improvement of public services, such as health care and education. This impact, however, deals only with individuals as subjects – recipients of government action. AI also has the capacity to empower individuals and make them more responsible for their actions. In this sense, AI is a mechanism for enhancing individuals as citizens rather than merely as subjects.

As we envision the AI World Society (AIWS), it is a society where innovation, creativity and dedication are promoted and given material support, and in which individuals who contribute to society through innovation, creativity and dedication are heard, recognized and rewarded.

We also envision it as a society that increases citizens' opportunities to influence governmental decisions and to hold government accountable for its actions. Citizen participation is not a substitute for representative institutions, but the AIWS model expands the range of decisions in which citizens are directly and materially involved. AI in this context should support the self organization of citizens in structures of civil society and those for political action, thus contributing to a more vibrant and open society and a living democracy.

Goals of AI-Citizen

AI-Citizen would seek to nurture innovation, creativity and dedication and the ability to organize for a common purpose; develop a mechanism for rewarding innovation, creativity and dedication, getting organized for public interest purposes; develop ways for individuals to participate more fully and actively in government decisions, parliamentary and other democratic activity and civil society; and provide ways for individuals to hold government and other actors accountable for decision affecting them and society generally.

Structure of AI-Citizen

In addition to an education system that would impart AI literacy an understanding related to the rules necessary to ensure that AI services the public interest, and promote values and knowledge aimed at nurturing innovation, creativity and dedication, and democratic engagement, AI-Citizen would be supported through four systems:

AI-Citizen Support Center (AICS). This system is designed to assist citizens' decision making. It would provide unbiased, easily access to information relevant to the decisions that citizens make.

AI-Citizen Voice. This system is a channel through which citizens can make their views know, not only on policy positions but on the performance of government units and programs. It would also allow people to organize collectively, rather than only voicing their interests individually and in solation from others.

Social Value Reward (SVR) System.
This system would provide a way for citizens to track their contributions to society, as well as a way for society to acknowledge those contributions. It would allocate reward based on citizens' adherence to norms such as their dedication and their innovative, creative contributions. It stands in sharp contrast to China's "social credit" system, which is a mechanism of state control. Based on a blockchain system, SVR would not have government input or be accessible by government. Reward would be allocated by civic-minded non-governmental organizations. The system is used to recognize and honor citizens for their contributions to society. Punitive action is prohibited. SVR would also permit citizens to evaluate the leaders of governmental institutions, governments, non-government organizations and firms for their contributions to society. SVR would accord The European Union's General Data Protection Regulation (GDPR) and The Ethics Guidelines for Trustworthy Artificial Intelligence (AI) issued by the European Commission's high -Level Expert Group on Artificial Intelligence.

Tasks required to develop AI-Citizen

To develop the AI-Citizen, a country must pursue numerous tasks, including:

- Developing the AI-Citizen Support Center (AICS)
- Developing the AI-Citizen Voice system
- Developing the Social Value Reward (SVR) system
- Creating standards for assessing citizen dedication, innovation and creativity
- Helping citizens to understand and apply the standards in their daily lives
- Ensuring that citizens are equal in the opportunities to contribute social value
- Ensuring that the education system fosters dedication, innovation and creativity
- Ensuring that AI literacy is part of the education system.
- Preparing citizens to have a large voice in governing
- Developing methods for giving citizens a greater voice in governance
- Developing methods by which citizens can more fully hold government accountable.

Early Strategy for Developing AI-Citizen

A first step in the development of AI-Citizen would be assembling the wide range of experts (everyone from computer scientists to ethicists) who address the challenge of establishing AI-Citizen. Planning for the Social Value Reward (SVR) system would not be an early priority, but its eventual development should be taken into account in early stages. Brining other actors (firms, universities, think tanks, non-governmental organizations, etc.) into the process at an early stage would also be a priority, both to get their perspectives and cooperation in the effort.

IV. SUMMARY

Although Artificial intelligence can be a destructive technology and has the risk of concentrating power and subordinating individual interest to machine-derived decisions, it also holds out the promise of improved governance and empowered citizens. For that promise to be realized, the Boston Global Forum believes that there needs to be a deliberate effort to work AI into the governing process in a way that enhances governance while strengthening citizenship, supporting democracy, and upholding fundamental individual rights and the rule of law.

In this brief, we have outlined a vision of how that can happen: AI-Government and AI-Citizen. The AIWS Model we propose envisions a society where innovation, creativity and dedication, democracy, individual rights and the rule of law are recognized and promoted, where AI is used to assist and improve government decision-making to make progress towards a more socially inclusive and just society in which citizens have a larger voice in their governing. We urge the G-7 countries to assume leadership on these issues.

To view the full AI World Society 2019 G7 Summit Conference, please use the following links:
Pt. 1 - https://youtu.be/p0EV_jRlMEM
Pt. 2 - https://youtu.be/hcvH-sheOuc
Pt. 3 - https://youtu.be/BMn9bHGrGWA
Pt. 4 - https://youtu.be/IgELartOa7k

09

Transatlantic Approaches on Digital Governance: A New Social Contract in the Age of Artificial Intelligence

WORLD LEADERSHIP ALLIANCE-CLUB DE MADRID

09

Transatlantic Approaches on Digital Governance: A New Social Contract in the Age of Artificial Intelligence

WORLD LEADERSHIP ALLIANCE-CLUB DE MADRID

(This is the final report of a World Leadership Alliance-Club de Madrid/ Boston Global Forum Virtual Policy Lab held September 16-18, 2020)

The World Leadership Alliance-Club de Madrid (WLA-CdM) in partnership with the Boston Global Forum (BGF) organized an in-depth transatlantic, multi-stakeholder virtual dialogue. Framed as a Virtual Policy Lab, the dialogue focused on global challenges, with special emphasis on the need to create a new social contract on digital technologies and Artificial Intelligence (AI) and possible policy solutions toward that end.

The Final Report highlights the key features of each session and the nature of the deliberations. The concluding session called for members of World Leadership Alliance-Club de Madrid and world leaders to support, endorse and work for the implantation of the Social Contract for the AI Age. Among the central features of the Social Contract for the AI Age are the following:

First, it defines an international TCP/IP (the platform for communication among internet users), that is, a set of norms, values and standards specifically designed as connections among governments for enabling and supporting international relations - including between governments, between companies, between companies and governments.
Second, it is anchored principles of justice and equity, recognizing that communities must have control over their data, given that data literacy at all levels of society is the basis for an intelligent, thoughtful society.
Third, its goals and global reach call for all governments to promote the **Democratic Alliance for Digital Governance.**

In terms of implementation, the Social Contract for the AI Age involves:

- The promulgation of a Code of Ethics for AI Developers and AI Users.
- The creation of a system to monitor and evaluate governments, companies, and individuals.
- The recognition of the Social Contract for the AI Age by the United Nations, OECD, and other international organizations, governments, companies, civil society and the global AI community.
- The creation of the "AIWS City", a virtual digital city dedicated to the principle of the Social Contract for the AI Age.

Other key measures are noted in the concluding remarks.

1. Overview

By discussing North American and European approaches towards a new social contract considering AI and digital governance, the Policy Lab afforded us an opportunity to gather, in a virtual format, the critical eye and views of former democratic Heads of State or Government, representatives of governments, academic institutions and think tanks, tech companies, and civil society, from both regions, to stimulate new thinking on the issue.

The discussion served to encourage, strengthen, and better frame transatlantic cooperation on a new social contract on digital governance in the context of the necessary reform of a multilateral system faced with a complex web of global challenges, now compounded by the very broad consequences of the COVID-19 global health crisis.

The magnitude and relevance of the COVID-19 pandemic, in fact, upended original plans for this initiative, having to change the initial date and format. However, this context evidenced the importance of a multi-stakeholder analysis and discussion on the interaction between artificial intelligence and new technologies and measures/policies by governments, international organizations, companies, and society at large.

In preparation for the Policy Lab, WLA-CdM and BGF organized two online roundtables to fuel and enrich deliberations within the Policy Lab. The first roundtable focused on the deployment of digital technologies in response to COVID-19 pandemic, and their implications on privacy rights; and the second one addressed the interaction between digital technologies, elections and democracy in times of COVID-19, analyzing the role of digital technologies in protecting democracies and guaranteeing free, fair, and transparent elections in times of global emergencies.

2. Objective

The Policy Lab was organized with two main goals in mind. First, to offer a multi-stakeholder platform to stimulate innovative thinking on a new social contract for digital governance in the framework of transatlantic cooperation. Second, to generate action-oriented analysis and policy recommendations to strengthen the role of the multilateral system in shaping a common digital governance, following the call to action of WLA – CdM's 2019 Policy Dialogue on 'Digital Transformation and the Future of Democracy', and the Boston Global Forum's (BGF) work on the AIWS Social Contract 2020 or Social Contract for the AI Age and AIWS Innovation Network (AIWS.net), AIWS City. Under the umbrella of the new Social Contract in the Age of AI, we distilled the key points that the proposed document must have in order to protect property, common values, collective norms, and social well-being for all in a world where global challenges must be met by responsible, collective action.

We examined the importance of global digital cooperation to build a more resilient multilateral system, capable of preventing and/or better mitigating the impact of future global crises and improve global preparedness. Likewise, we took a tour of the initiatives that could boost a new Social Contract on Artificial Intelligence and Digital Governance, analyzing challenges facing transatlantic partnerships in this field, but also exploring how multilateral organizations can serve as a platform to boost transatlantic relations and, thus, offer the simultaneous benefit of revitalizing and renewing the multilateral system.

Finally, we examined the groundwork necessary to build effective multistakeholder coalitions to address this objective and to adapt the multilateral framework for building a digital future based on equity, privacy, and people-centered values.

3. Sessions outcomes

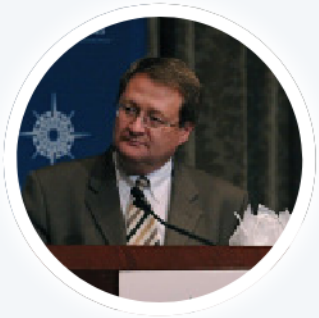
The sessions presented the main challenges and opportunities as well as recommendations on Transatlantic digital cooperation in the context of a global pandemic. This pandemic has demonstrated that a Social Contract on digital governance and the renewal of multilateralism and global cooperation mechanisms are necessary to respond in a coordinated and collective way to challenges affecting us all.

The plenaries were guided by a facilitator and allowed the speakers to offer their views on the questions this dialogue was meant to resolve. In some cases, the sessions also included a keynote to frame the discussion.

Wednesday, 16th September

Introduction to the Policy Lab on Transatlantic Approaches on Digital Governance: A New Social Contract in the Age of Artificial Intelligence

- Danilo Türk, President of WLA-CdM, President of Slovenia (2007-2012)
- Manuel Muñiz, Secretary of State for Global Spain, Ministry of Foreign Affairs, European Union and Cooperation of Spain
- Mr. Nguyen Van Tuong, Chairman of Tram Huong Khanh Hoa (video)
- Governor Michael Dukakis, Chair of The Boston Global Forum



Milburn Line

Senior Advisor for Policy and Content of the WLA-CdM Shared Societies Project and Master of Ceremonies of the Policy Lab

Milburn Line described the overall objectives of the latter, mainly to pool new ideas from representatives from governments, international organizations, academia, think-tanks, tech companies and civil society from both regions, ultimately leading to the creation of a space to strengthen transatlantic cooperation with views to a new social contract. He framed the Policy Lab as a platform to establish a transatlantic alliance for digital governance, and to generate and showcase initiatives valuable for both the public and private sectors.

Danilo Türk

President of WLA-CdM, President of Slovenia (2007-2012)

President Türk appealed to the convening power of former Heads of State and Government who can bring together experts and scholars to consider where multilateralism stands and where it is going. He mentioned the growth and role of digital transformation and artificial intelligence in almost every facet of daily citizens' lives, and how Covid-19 has accelerated the widespread deployment of digital technologies and artificial intelligence, underlining international interdependence and the need to strengthen multilateral cooperation in building a digital future. He noted multilateralism and international cooperation are more necessary than ever and explained that policy recommendations stemming from the Policy Lab contribute to discussions in WLA-CdM Annual Policy Dialogue where digitalization would be one of the key themes of debate.

Manuel Muñiz

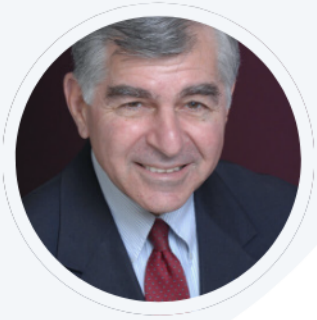
Secretary of State for Global Spain, Ministry of Foreign Affairs, European Union and Cooperation of Spain

Secretary of State Muñiz shared the Spanish government's work on drafting a strategy on technology and the global order meant to address the issues we would be discussing in a systematic way and inform Spanish foreign policy. He underlined Spain's enormous transatlantic agenda, describing it as the country's densest relationship relevant to issues ranging from climate change and the future of Paris Agreement to the Middle East peace process, the diverse implications of China's rise, digital taxation, trade and tariffs or multilateralism, the future of WHO and global governance, among many others. As a result, it is essential that the transatlantic relationship is deep and fully functioning, and that fundamental agreements are reached. The state of the social contract within Europe and the US will have an impact on the relationship across the Atlantic and on the policies developed on both sides of the Atlantic.

Nguyen Van Tuong

Chairman of Tram Huong Khanh Hoa

Tuong underlined the need to be connected in order to share a common vision towards the construction of a well-grounded AI World Society in the future, and to guarantee humanitarian values for AI. He then spoke about a Vietnamese initiative to develop the Nha Trang Innovation Village, a hub of knowledge where international experts would gather to ensure a future where AI and humanitarian values are present.



Michael Dukakis

Chair of The Boston Global Forum

Governor Dukakis started by expressing his concern about international rivalries in a delicate moment. This is not the world that most people want for the future and we must find ways of bringing everyone together to tackle crucial issues such as AI. The November elections in the US will be important, and he expects it will result in leadership that understands how necessary a strong commitment to multilateralism and international cooperation is in order to solve problems and issues peacefully and wisely.

Keynote Speech "Transatlantic Relations and the Digital Social Contract"

Secretary of State Muñiz framed the global and national challenges posed by digital transformation and initiatives undertaken by Spain to address them. The context of the COVID-19 pandemic has exacerbated social exclusion in health, which compounds sensitivities around digitalization processes, tendencies to deepen concentration of wealth and social fissures. Trends towards populism threaten our shared Transatlantic values and rights and freedoms. The answer lies in investing in the modernization of the workforce; challenging monopolistic digital practices; taxing tech companies working across borders; containing disinformation and election hacking; and ensuring privacy rights to ensure continued political, economic and social stability on both sides of the Atlantic.

Introductory Session: A New Social Contract in the Age of AI

Keynote

Thomas Patterson, Research Director of The Michael Dukakis Institute for Leadership and Innovation, Professor of Government, and the Press of Harvard Kennedy School

Panel discussion

- Valdis Birkavs, Member of WLA-CdM, Prime Minister of Latvia (1993-1994)
- Jerry Jones, Advisor of WLA-CdM, Executive Vice-President, Ethics and Legal Officer, Live Ramp
- Nuria Oliver, IEEE Fellow, ACM Fellow, member of the High-Level Expert Group on B2G data sharing at the European Commission (video)

Facilitator

Ramu Damodaran, Editor-in-Chief of the UN Chronicle and Chief of the United Nations Academic Impact

The keynote reviewed both the potential positives and negatives related to digital transformation and established parameters for a new Social Contract for citizens in the digital age. AI may facilitate more responsive governance through greater government investment in and scrutiny of data gathering that may be facilitating authoritarian control of citizens. Tech companies can deploy AI in malicious ways. As such, AI presents clear risks to privacy, self-determination and human rights. A new Social Contract is needed to define the social rights and interests of individuals, companies and governments and the parameters and limits needed to secure these rights. If governments do not promote transparency and accountability through laws that protect privacy of personal data, the risk of manipulation is high and public trust will continue to decrease.

Nuria Oliver defined key pillars for managing digitalization and AI, highlighting criteria for increased investments; the need for transforming legal and regulatory frameworks; the imperative of defining ethical boundaries for the process; investments necessary to offer broadly inclusive educational opportunities for citizens to keep up with the pace of change; and investments in transforming labor.

Jerry Jones warned that policy and governments move at a much slower pace than technology, which will continue to be a challenge for managing the process. By not keeping up our democratic frameworks, these risks losing legitimacy and power may devolve to mega-companies setting their own rules.

PM Birkavs emphasized that Transatlantic cooperation is vital to regulate digital transformation and AI, or these may better "understand people better than people themselves."

▶ Thursday 17th September

Session I: The AIWS Social Contract for the AI Age and AIWS Innovation Network: A Platform for Transatlantic Cooperation

Panel discussion

- Vaira Vike-Freiberga, Member of WLA-CdM, President of Latvia (1999-2007)
- Esko Aho, Member of WLA-CdM, Prime Minister of Finland (1991-1995)
- Vint Cerf, Father of the Internet, Chief Internet Evangelist, Google
- Nguyen Anh Tuan, CEO of the Boston Global Forum, "Presentation AIWS City, a practicing of The Social Contract 2020, A New Social Contract in the Age of AI"

Facilitator

Nazli Choucri, Boston Global Forum Board Member and Professor of Political Science at the Massachusetts Institute of Technology (MIT)

Panelists reiterated their concern that the speed of change is outpacing capacity to regulate its excesses.

Nazli Choucri highlighted key features of The Social Contract for the AI Age (also known as the AIWS Social Contract 2020). She noted that it is an effort to (a) ensure that governments create mechanisms for the security of citizens in the digital domain, and (b) protect the ability of individuals to hold government accountable for its own AI and digital activities. Central to these processes is the importance of steering societies through the most effective paths of most transition to the AI Age. With greater use AI -- and greater innovations and applications – we must put mechanisms in place to make sure of that their scientific bases are robust, and that all "hidden" AI features can be understood. In a multilateral context, the time has come for the development of a United Nations Convention on Artificial Intelligence.

Vint Cerf, the 'father of the internet', emphasized the power of digital platforms and AI to enhance people's value and allow governments to better serve their citizens. Yet we must find a way to regulate the use of technology and reduce potentially abusive applications.

Nguyen Anh Tuan highlighted that the upside of shared value through digitalization is being demonstrated by the AIWS City Initiative and showed some of the pragmatic and operational challenges. According to Nguyen Anh Tuan, the AIWS City is an all-digital virtual city based on trusted open data, that applies the standards of the "Social Contract for the AI Age", "People-Centered Economy", "Trustworthy Economy", "Intellectual Society", and "AI-Government".

The AIWS City implies creating a new values system named AIWS Value. It includes the traditional values (products, services, data, innovation, creativities, etc.) and social values (contributions). Hence, recognizes and exchanges traditional and social values. Besides, it has the AIWS Reward as a digital currency created by blockchain which has value, and it is exchangeable.

President Vike-Freiberga noted the potential benefits of increased feedback between governments and citizens but warned that governments must remember their role of delivering basic goods to society and ensure that humans still govern and not machines.

Prime Minister Aho emphasized that technology cannot be stopped but a social model can be designed which will create social trust and ensure equality.

Session II
Global digital cooperation for a world better prepared: Challenges and Responses to Health Security

Panel discussion

- **Danilo Türk**, President of WLA-CdM, President of Slovenia (2007-2012)
- **Yu Ping Chan**, Senior Program Officer, Office of the Under-Secretary General and Special Advisor on Preparations for the 75th UN Anniversary & the High-Level Panel on Digital Cooperation
- **David Silbersweig**, Chairman, Department of Psychiatry and Co-Director for Institute for the Neurosciences, Brigham and Women's Hospital
- **Effy Vayena**, Professor of Bioethics at the Swiss Institute of Technology (ETHZ) and WHO consultant

Facilitator

Cristina Manzano, Board Member of WLA-CdM, Director of Esglobal

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As **Yu Ping Chan** highlighted, though the United Nations has arrived late to digital cooperation efforts it is now a UN priority, and the UN Secretary General's Roadmap for Digital Cooperation envisions a multi stakeholder approach to regulate and build digital trust[1]. A key challenge is to integrate almost half the world's population, 3.6 billion people, who are not yet connected to the internet

COVID-19 has served as a wake-up call for change on AI and Digital policies and has produced both increases in depression and anxiety but also new methods of intervention, including tele-psychiatry, noted David Silbersweig

Effy Vayena remarked that while data has been critical for understanding the spread of the pandemic, issues of trustworthiness and the use of data have arisen. President Türk sustained that the key to addressing the current and future pandemics was the coordination of national health systems. While the EU experience has been positive, following initial delays, global institutions need to be empowered by capable leaders to take new steps in coordination and cooperation.

1 https://www.un.org/en/content/digital-cooperation-roadmap/

Session III: Policy frameworks for AI

Keynote speaker

Andrew Wyckoff, Director for Science, Technology, and Innovation, OECD

Panel discussion

- **Zlatko Lagumdžija,** Member of WLA-CdM, Prime Minister of Bosnia and Herzegovina (2001-2002)
- **Peggy Valcke,** Vice-Chair of the Council of Europe's Committee on Artificial Intelligence (CAHAI)
- **Regine Grienberger**, Director for Cyber Security Policy and Cyber Foreign Policy, Federal Foreign Service Office, Germany
- **Lorraine Kisselburgh**, Chair of New ACM Technology Policy Council
- **Andrew Wyckoff**, Director for Science, Technology, and Innovation, OECD

Facilitator

Marc Rotenberg, Director of Center for AI and Digital Policy at Michael Dukakis Institute and the Boston Global Forum.

Andrew Wyckoff offered a keynote review of policy parameters regarding Artificial Intelligence. 37 member countries of the Organization for Economic Cooperation and Development (OECD) have adopted the Principles on Artificial Intelligence built around concepts of inclusive growth, sustainable development, human values and fairness, transparency, security and safety, and accountability[2]. Proactive efforts are needed to sustain and realize these principles.

Regine Grienberger pointed out that during its EU Presidency, Germany will pursue a strategy to ensure AI and quantum technology produce fair competition and protect European security and values, in line with the European Commission White Paper of February 2020 announcing a European Initiative on AI.[3] This initiative builds on the work of an Ad Hoc Committee on Artificial Intelligence (CAHAI) at the Council of Europe, with representatives of the 47 Member States, Observatory States, International Organizations, the private sector, and civil society.[4]

Peggy Valcke noted that CAHAI has considered formulating an additional protocol regarding the human rights implications of AI.

Other groups have explored developing rights frameworks to ensure universal guidelines on AI, including the Public Voice Coalition's Universal Guidelines on AI, built around principles of fairness, accountability and transparency and addressing issues of data accuracy, validity, quality, safety and security, as underlined by **Lorraine Kisselburgh**.[5]

Prime Minister Lagumdžija closed the session with a call for continued collaboration between all stakeholders and governments to expand on these foundations at the global level as AI is going to define the coming age and we will need global strategies and solutions for its management that include people as the center of them.

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2 https://www.oecd.org/going-digital/ai/principles
3 https://ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf
4 https://www.coe.int/en/web/artificial-intelligence/cahai
5 https://thepublicvoice.org/ai-universal-guidelines/memo/

Friday, 18th September

Session IV
Transatlantic initiatives towards a new Social Contract on Artificial Intelligence and Digital Governance

Panel discussion

- Kim Campbell, Member of WLA-CdM, Prime Minister of Canada (1993)
- Alexander Stubb, Prime Minister of Finland (2014-2015), Professor & Director, School of Transnational Governance, European University Institute, Florence
- Alex "Sandy" Pentland, Director, MIT Connection Science and Human Dynamics labs, "Making the New Social Contract Work"
- Žaneta Ozoliņa, Chair of the Latvian Transatlantic Organization

Facilitator

Ted Piccone, Advisor of WLA-CdM, Nonresident Senior Fellow in Security and Strategy in the Foreign Policy program at Brookings, Chief Engagement Officer at the World Justice Project.

Žaneta Ozoliņa started by pointing out that the Baltics have led on digitalizing governance through a vibrant Information and Communications Technologies sector. A Social Contract can help set the rules as to how new realities should function but will require special codes of conduct for the private sector. Europe and the US must engage on how to regulate data and AI as a new means of production requiring norms and regulations.

Sandy Pentland saw the COVID-19 pandemic as an example of the failure to ensure effective data sharing.

Prime Minister Campbell reminded us that we are back to the dilemma of philosopher John Rawls regarding the interests of those most affected. For democracy to survive we must develop an international system that protects people from deliberate lies and misinformation, biased algorithms and the digital exclusion.

Prime Minister Stubb posited that if we are to create digital democracies and not digital dictatorships, we will need to have a human centric approach with trustworthy AI. The US and Europe are on the same side of the argument based on shared values and respect for fundamental rights. We must unite across the Atlantic to ensure adequate regulation available to both, including authority of the EU as a regulatory superpower.

Session V

Multi-stakeholder initiatives and the multilateral system: global cooperation to build a common digital future

Panel discussion

- **Jan Peter Balkenende**, Member of WLA-CdM, Prime Minister of the Netherlands (2002-2010)
- **Nam Pham**, Assistant Secretary, Government of Massachusetts
- **Rebecca Leeper**, Software Engineer and Director of CGDF, AI Monitoring Project atAIWS.net
- **Jerry Jones**, Advisor of WLA-CdM, Executive Vice-President, Ethics and Legal Officer, Live Ramp
- **Paul Nemitz**, Principal Advisor in the Directorate General for Justice and Consumers at the European Commission, author of "The human imperative: Power, Freedom and Democracy in the Age of Artificial Intelligence"

Facilitator

Thomas Patterson, Research Director of The Michael Dukakis Institute for Leadership and Innovation, Professor of Government, and the Press of Harvard Kennedy School.

Professor Patterson reminded participants that a global perspective is imperative as data transcends national boundaries. For this reason, the Boston Global Forum is creating an AI Ethics Index which will track AI policies and practices of countries, according to ethical standards, in the areas of Human Rights, Rule of Law and bureaucratic and democratic governance and be published annually.

Nam Pham pointed out that a Social Contract must be transparent and respect fundamental human rights such as human dignity, rule of law and privacy/protection, and be enforceable for places and people who do not share our values. Regarding AI, Mr. Pham remarked the need to come up with more creative mechanism to enforce what is good for people. He considers that if the advancement on AI can create better platforms that people in risk can have a voice on what we do, it will have an impact in enforcement on government policies.

On the other hand, Rebecca Leeper mentioned that BGF and AIWS.net is also working to articulate a Common Good Digital Framework to regulate the many gaps in our knowledge as both the public and private sectors rapidly adapt to the cloud. When building a consensus of public and private data management and decisioning system, we know that systems work well when there is a foundation of trust that has been objectively earned. Yet trust in big tech companies following the rules has been in decline for it is hard to have trust without rules.

Jerry Jones remarked that boundaries need to be set in order for people to be comfortable with their data being shared and used. When building a consensus of public and private data management and decisioning system, we know that systems work well when there is a foundation of trust that have been earned objectively. On the other hand, Mr. Jones highlighted that the fourth estate used to publicize excesses, but the digital world moves so fast that the physical world of journalism failed as a business model and was transferred to the technology companies. To resolve this dilemma multi-stakeholder for a need to support and even lead the institutions of democracy in this field.

Paul Nemitz remarked that the development of laws on technology must gain ground, not as an obstacle to innovation but as a way to better establish what the majority desires. From his point of view, the core question that must be addressed in a multi-stakeholder setting is how to enforce the laws in AI. The hope for global enforcement mechanisms at the level of UN is a noble hope and we need to work for this, but history tells us that these mechanisms are extremely scarcely distributed. According to Nemitz, the business model of big tech companies as Google and Facebook, is collecting anything we read and, by knowing this, they can benefit from adverts. In this context, digital platforms shall also be regulated, but even with a good regulation, the big tech companies can still be very successful.

Prime Minister Balkenende closed the session reminding us that we must develop a multilateral, multi-stakeholder approach based on common goals. A new Social Contract depends on having the right partners involved.

4. Concluding remarks

Of the many challenges to be addressed in the field of digitalization and artificial intelligence, the WLA-CDM is convinced of the need to continue working with the Boston Global Forum to:

- Support the efforts of different stakeholders to find the proper way to regulate the use of technology with the aim of generating greater social trust;
- Strengthen an inclusive, accountable, transparent and ethical system centered around human beings, where Human Rights and a rules-based order are respected, and of fundamental importance;
- Produce outcomes for what we call Shared Societies, built on the inclusion of all peoples, including diverse identity groups, youth and women, that truly leaves no one behind;
- Support efforts to transform the UN Secretary General's Roadmap on Digital Cooperation into a United Nations Convention on Artificial Intelligence to build global consensus and define boundaries on its human-centered, managed use;
- Promote a Transatlantic Alliance for ensuring our multilateral system is capable of managing the global health crisis and other global challenges;
- Build on the common values that unite both sides of the Atlantic, including democracy, the rule of law, social inclusion and trust, equity and fairness, in order to achieve a consensus on governance frameworks for building a humane digital future for all; and
- Support and advance Social Contract for the AI Age or the AIWS Social Contract 2020, the AIWS Innovation Network, the AIWS City and the AI Ethics Index, as first steps to boost transatlantic digital cooperation.

To view the full Policy Lab, please use the following link:
http://www.clubmadrid.org/policy-lab-transatlantic-approaches-on-digital-governance-a-new-social-contract-on-artificial-intelligence/

BOSTON GLOBAL FORUM
IDEAS THAT MATTER.

WORLD LEADERSHIP ALLIANCE
CLUB DE MADRID

Transatlantic Approaches on Digital Governance

A New Social Contract in the Age of Artificial Intelligence

10

A Social Contract for Digitial Age

WORLD LEADERSHIP ALLIANCE-CLUB DE MADRID

10

A Social Contract for Digitial Age

WORLD LEADERSHIP ALLIANCE-CLUB DE MADRID

(This is the press release of The World Leadership Alliance - Club de Madrid issued on December 16, 2020 of the Virtual Policy Lab held on September 16-18, 2020.)

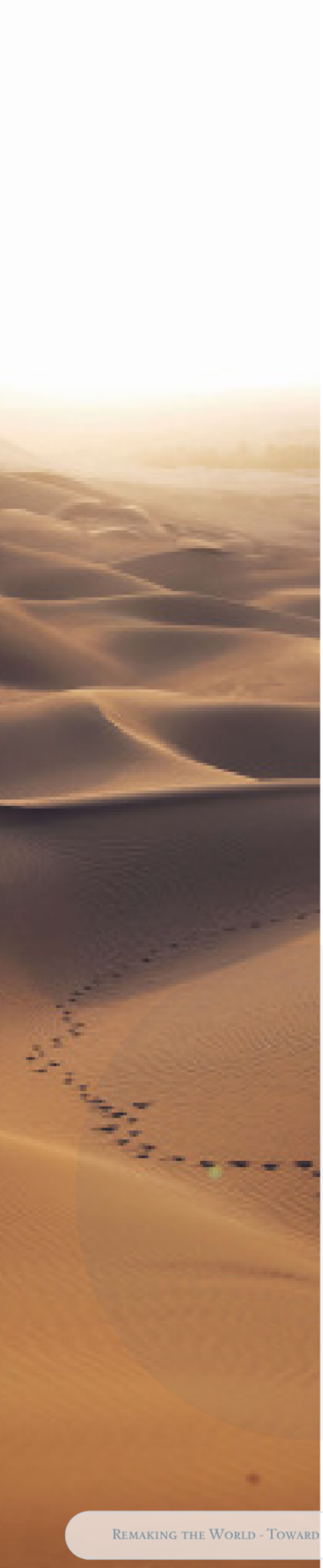
In a Policy Lab organized on 16-18 September, the former heads of State and Government that that are Members of Club de Madrid joined experts from top universities convened by the Boston Global Forum, as well as other government representatives to present global policies for a better management of digital technologies and Artificial Intelligence. AI is a means of giving citizens a larger voice in their governing.

Club de Madrid and the Boston Global Forum just released the Final Report of the Policy Lab 'Transatlantic Approaches on Digital Governance: A New Social Contract in the Age of Artificial Intelligence', calling for members of World Leadership Alliance-Club de Madrid and world leaders to support, endorse and work for the implementation of the Social Contract for the AI Age.

Among the central features of the Social Contract for the AI Age are the following:

- Defining a new TCP/IP (the platform for communication among internet users), that is, a set of norms, values and standards specifically designed as connections among governments for enabling and supporting international relations – including between governments, between companies, between companies and government.
- Communities must have control over their data, given that data literacy at all levels of society is the basis for an intelligent, thoughtful society.
- All governments should promote the Democratic Alliance for Digital Governance.
- In terms of policymaking, Club de Madrid and the Boston Global Forum's proposed Social Contract for the Digital Age involves.
- Supporting an approach that includes different actors: governments, international organizations, tech companies, civil society organizations, amongst others.

- Strengthening an inclusive, accountable, transparent, and ethical system centered around human beings, where Human Rights and a rules-based order are respected.
- Supporting efforts to transform the UN Secretary General's Roadmap on Digital Cooperation into a United Nations Convention on Artificial Intelligence.
- Promoting a Transatlantic Alliance ensuring that our multilateral system is capable of managing the global health crisis and other global challenges.
- Creating a Code of Ethics for AI Developers and AI Users.
- Building a system to monitor and evaluate governments, companies, and individuals.
- Fostering the recognition of the Social Contract for the AI Age by the United Nations, OECD, and other international organizations, governments, companies, civil society and the global AI community.
- Creating the "AIWS City", a virtual digital city dedicated to the principle of the Social Contract for the AI Age.



Background

In the midst of the current world health emergency caused by COVID-19, and which has impacted all spheres of life, humanity has turned to digital technologies and artificial intelligence to face impending challenges. From remote working to financial services and medical equipment, the extent to which we now depend on technology is increasing at a staggering rate. Hospitals are using robots to disinfect rooms, governments have become reliant on complex databases to curb the virus' spread, and programmers have designed phone apps from which we can remotely control outbreaks. Under the present circumstances.

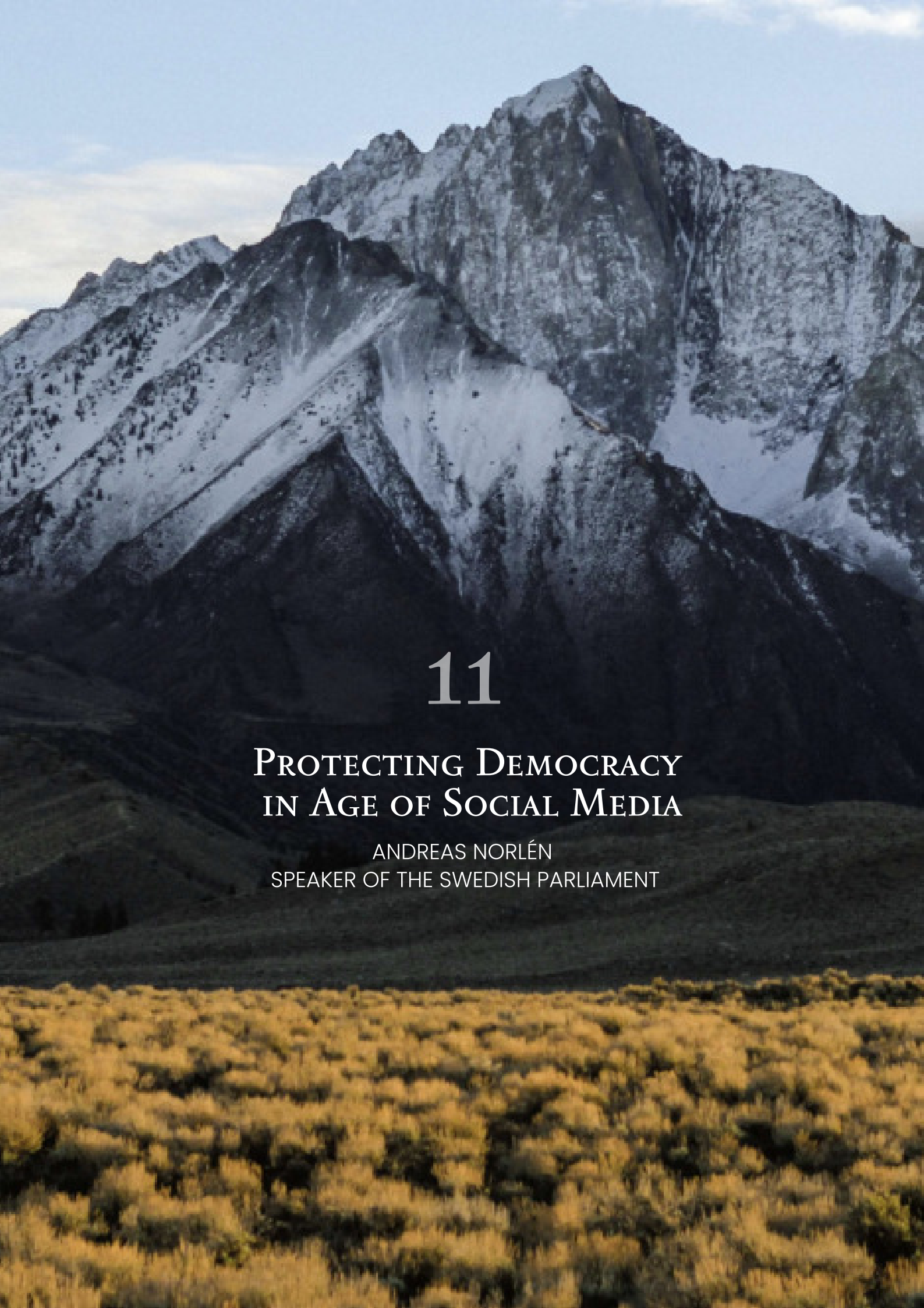
In this trying context, World Leadership Alliance-Club de Madrid (WLA-CdM) in partnership with the Boston Global Forum (BGF), and with the generous support of the Tram Huong Khanh Hoa Company (ATC), organized the Policy Lab "Transatlantic Approaches on Digital Governance: A New Social Contract in the Age of Artificial Intelligence,". This multi- stakeholder dialogue analyzed global challenges and offer actionable policy solutions, as we consider the need to create a new social contract on digital technologies and artificial intelligence (AI). By contrasting North American and European best practices and perspectives, Club de Madrid and Boston Global Forum formulated policy recommendations and innovative ideas that help shape the role of the multilateral system in digital governance and give way to a renewed agreement between society and governments on digitalisation.

To debate these challenges, the Policy Lab will convened over 10 former democratic Heads of State and Government (all Members of Club de Madrid) Manuel Muñiz, Secretary of State for Global Spain, Ministry of Foreign Affairs, European Union and Cooperation of Spain, as well as world class experts like computer scientist father of the Internet Vint Cerf, chess grandmaster Garry Kasparov, MIT Professor Alex Pentland and Governor Michael Dukakis, Democratic Party nominee for President of the United States (1988), professors of Harvard, MIT, and top universities. Together, the participants will lend their experience-based critical judgement to pioneering discussions which seek, among other priorities, to identify ways of engaging different sectors of society in grounding policymaking while protecting the democratic mandate.

Safeguarding citizen rights has become imperative since technology grants substantial power to those who control it. For instance, the technology being used to track citizen movements could potentially pose a violation of privacy rights if misused or left at the hands of non-democratic governments. New communication channels have also been contributing to the rapid spread of fake news about COVID-19, which has generated disinformation and increased confusion. All in all, the rapid rollout of digital technologies and AI beyond the control of states poses a global challenge never seen before, which is why we should not set global, regional and national standards of digital governance without all societal actors. Like so, debates from this Policy Lab on "The Social Contract for the AI Age", the first social contract in digital, Internet and AI era, a platform for connection among governments, stakeholders, and private and public institutions, and for balancing centers power, initiated by the Boston Global Forum, paid particular attention to insight presented by government representatives, academic institutions, think tanks, tech companies and civil society.

By comparing American and European approaches in the creation of a new social contract on digitalization, with the foresight of former democratic presidents and prime ministers, this discussion generated a space to encourage and strengthen transatlantic cooperation around technology seems to be an ally rather than a foe. Still, increasing concern from governments, academics and civil society that this technological transformation may be outpacing policy, must not be overlooked.

The dialogue served as a platform to establish a Transatlantic Alliance for Digital Governance and the AIWS City, an all- digital virtual city based on the standards and norms of "the Social Contract for the AI Age", "People Centered Economy", "Trustworthy Economy" and "Intellectual Society". Lastly, the discussing addressed the creation of an initiative to monitor governments as well as companies in using AI and to generate an AI Ethics Index at all levels.



11

Protecting Democracy in Age of Social Media

ANDREAS NORLÉN
SPEAKER OF THE SWEDISH PARLIAMENT

11

Protecting Democracy in Age of Social Media

ANDREAS NORLÉN
SPEAKER OF THE SWEDISH PARLIAMENT

(Speech delivered by Andreas Norlen at Boston Global Forum Digital Governance Conference, July 1, 2020.)

Governor Dukakis, Excellencies, Ladies and gentlemen. As the Speaker of the Swedish Parliament, I want to thank you for giving me the opportunity to address you today. I can only regret that I cannot be with you in person, but given the current circumstances, that is obviously not an option. And let me on behalf of the Swedish Parliament express my sympathy to the people of the United States and to all other countries represented at the conference for all the hardship and the suffering that this corona crisis has caused.

Today, some 3 billion people use social media. That is in itself a good thing; the advantages of more and more people going online, learning new things, exchanging ideas, criticizing political policies or interacting is something the world as a whole will greatly benefit from.

The problem of course is that everyone online is not honest, and everyone is not our friend. There are many attempts to hack our systems and also to hack people's minds. Thera are strong players who are very interested in what we do on the internet, and algorithms can track people's actions online and then offer tailor made news that they think you want and provide you with either fake news or very biased news in order to make you think or vote or act in a certain way. Often the aim is to question our common values such as democracy, rule of law or personal freedom.

We have all heard about how elections in democratic countries have been exposed to this. For this reason, the awareness was quite high in Sweden when we had our last parliamentary elections in 2018.

Much to our surprise, no significant external organized hostile influence operations were detected. Maybe the most important advice on how to protect oneself from cyber-attacks, disinformation and organized hostile influence is: public awareness. As long as the public is aware that they run the risk of falling victim to those kinds of attacks, I think much has been won.

> “
>
> Do some news items seem too good to be true? Or maybe too bad to be true? Think again before you share them on social media.
> **That is a very good advice**.

I know it isn’t always easy to apply these virtues, but slowly but surely, I think the Swedes are getting better at this. Since 2016, it is mandatory for government agencies to report serious IT incidents. There are also many different agencies closely cooperating to detect cyber-attacks and hostile disinformation campaigns.

The role the parliament can play in this respect would be to facilitate the cooperation as much as possible, to stay alert and to also engage the public on how to behave on social media and on how to handle hostile disinformation campaigns. Even weak signals that something is going on are important. We must stay vigilante so that we can counter and handle hostile attacks.

There is also the strictly technological part – and I may not be the right person to elaborate on that in detail – but there are systems based on artificial intelligence that can expose influence operations. They include the use of algorithms to detect automated behaviour and hijacked user accounts. With this technology, you can detect potential deceptions in the large amount of data that is produced in social media every day.

I think that the greatest challenge to any election is public trust. As politicians in democracies, we are all in the so-called confidence business. If the voter confidence is lost or even weakened, we are on a slippery slope. As we all know, confidence is something that takes quite a while to build, but it can be lost very easily.

In Sweden we have traditionally taken pride in having a society with comparatively high confidence between people and for the institutions. According to a recent survey, the Swedish Parliament enjoys higher confidence than many other actors and organizations in the Swedish society and I think that is a very good thing for our democracy. We also have a high voter turnout, 87 percent voted in the last parliamentary elections in 2018. That also indicates that people trust the institutions. Thanks to this trust, it is easier to have meaningful conversations also online and I believe it is harder to manipulate people's minds.

> *It is hard to find a subject that is of greater importance to our democracies than safeguarding elections and making them legitimate, including safeguarding the public discourse and trying to keep it sound and balanced.*

By raising awareness both among the public and among civil servants, we managed to conduct our last elections in relative peace and protect our democracy and our common values, such as free and fair elections, human rights and the rule of law.

Increased awareness demands education. The more educated we are, the better we can, hopefully, detect fake news and biased information.

Education also applies to the new social contract in the age of artificial intelligence. New technology means automation in the workplace and that workers risk losing their jobs. Again, education and retraining are key. In Sweden, we talk more and more about "lifelong learning" – meaning that you are never really fully trained. In a society dependent on high technology you just have to accept that technology develops so fast, you will always lag behind – if you are not offered the proper training. For this reason, I believe that education must play a vital role for us to handle the new challenges in the new era.

Ladies and gentlemen, for me as the Speaker of the Swedish Parliament it is a priority to follow developments in the scientific field. That task is probably more crucial today than ever before. For this reason, I am looking forward to your AI World Society Summit and the conclusions that will be drawn. I am also looking forward also to following the discussion that will take place after this summit.

Let us all engage in this important dialogue about how best to handle technology in this new world. Please, ladies and gentlemen, your excellencies, stay safe and I hope we will meet in person in the future.

To view Speaker of the Swedish Parliament Andreas Norlén's speech:
https://bostonglobalforum.org/highlights/aiws-summit-2020-speech-by-andreas-norlen-speaker-of-the-swedish-parliament/

12

Building Partnerships

BAN KI-MOON
SECRETARY GENERAL OF UNITED NATIONS

12 Building Partnerships

BAN KI-MOON
Secretary General of United Nations

(Speech delivered by the UN Secretary-General Ban Ki-moon at Boston Global Forum Conference, December 12, 2016.)

It is a pleasure to greet the Boston Global Forum. I thank Governor Michael Dukakis for his long-standing support of the United Nations and his engagement across the international agenda. I am grateful to the Boston Global Forum for honouring me with its World Leader for Peace, Security and Development Award, which I accept on behalf of the talented and dedicated staff of the United Nations.

It has been a privilege to serve as Secretary-General. My decade in office has been a time of turmoil and challenge. We have seen protracted conflicts, growing inequality, rising extremism and xenophobia, and the largest numbers of refugees and displaced persons since the Second World War.

At the same time, we have opened up new horizons for progress. The adoption of the 2030 Agenda for Sustainable Development shows that countries can overcome their divisions to act for the common good. The Paris Agreement on climate change entered into force last month – a true landmark in humankind's efforts to address the defining threat of our time.

Our challenge is to build on these and other gains, and deepen the partnerships we have built among world leaders, the business community and civil society. One can easily be overwhelmed by the latest terrorist attack, extreme storm or outbreak of disease. But even amidst these crises, I continue to see -- and believe in -- the transformative power of collective action. Let us continue to work together in that spirit. Thank you again for this recognition and for your continued support of the United Nations.

I welcome your focus on cybersecurity. Advances in technology and science have opened up wonderful new opportunities, but they have also exposed us to new risks. As our lives have moved increasingly online, so, too, must our values and principles.

Cybersecurity has become a major global challenge, with wide-ranging implications for peace, security, trade and sustainable development. The United Nations has recognized the need to confront the threats that arise from the use of ICTs and the Internet for purposes that are inconsistent with the objectives of the UN Charter and the Universal Declaration of Human Rights.

Member States have been working to develop a global culture of cybersecurity that can fight cybercrime and cyber-attacks while protecting freedoms and sharing the benefits of ICTs and the Internet.
Cybersecurity will also be crucial as we implement the recently adopted 2030 Agenda for Sustainable Development, which will require us to tap into the potential of the data revolution and close today's still-large digital divides.

On 15-16 December, the United Nations General Assembly will convene a High-level Meeting to review progress in the implementation of the outcomes of the World Summit on the Information Society. Your discussion at this year's Boston Global Forum can provide a timely contribution as we strive together to meet these challenges.

Thank you for your support, and please accept my best wishes for a productive Forum.

Part II

Remaking the World: AI World Society (AIWS)

13

Meeting the Challenge of the AI Age

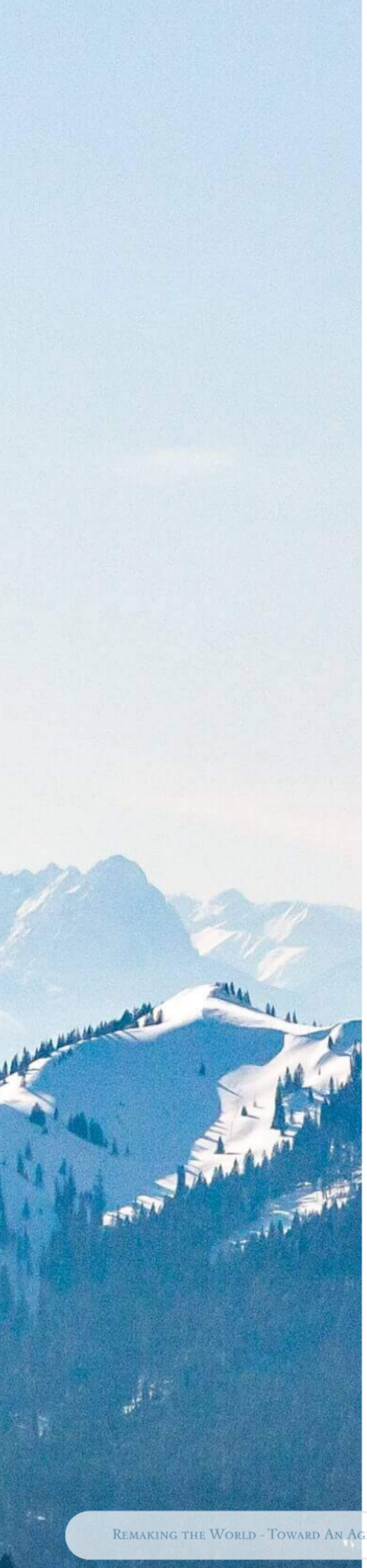
NGUYEN ANH TUAN, BOSTON GLOBAL FORUM CEO
AND THOMAS PATTERSON, HARVARD UNIVERSITY PROFESSOR

Optimism marked the 1945 convening of the United Nations in the aftermath of the world's deadliest war. The UN Charter charged the organization with maintaining international peace and security, protecting human rights, delivering humanitarian aid, promoting sustainable development, and upholding international law. The United Nations has worked in all these areas, and has accomplished much, but even its greatest admirers would acknowledge that it has fallen short of the hopes that marked its creation.

The period leading to the UN's centennial in 2045 is a time to ask how the UN can be strengthened. How can our common humanity be promoted? How can the international legal system be strengthened? How can access to quality education be extended to children everywhere? How can economic systems be shaped to create greater opportunity for all? How can political systems be adjusted to give greater voice, and power, to the people? How can nations be persuaded to forego aggression in favor of cooperative efforts? Such questions were in the forefront at the founding of the UN. That the questions remain important speaks to the challenge of remaking the world. But it also speaks to the need for a redoubled effort as the UN advances toward its centennial year.

In 1945, the challenge was to dampen the rivalries and ambitions that had led to two world wars. Conflict on that scale has not reoccurred, but armed aggression remains a disturbing feature of international politics. And new challenges have arisen that were not anticipated at the founding of the UN. The specter of nuclear annihilation was present in 1945, but it would be several decades before scientists understood that human-created carbon emissions were also an existential threat. Economic globalization was seen in 1945 to tie nations together, increasing the likelihood of cooperation and diminishing the possibility of conflict. Globalization has done that, but it has also brought new challenges, including trade disputes, economic exploitation, and a widening wealth gap, both within and between nations.

This chapter addresses yet another emergent threat – Artificial Intelligence (AI). The term "artificial intelligence" refers to the theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, and decision-making.



AI's Threats and Opportunities

When the UN was founded, electronic computing was in its infancy, and Artificial Intelligence (AI) was the subject of science fiction. All that has changed. The AI age is upon us.

It is widely recognized that advances in AI have altered conventional ways of viewing the world around us. This is creating new realities for everyone – as well as new possibilities. We have created new tradeoffs that must be assessed. We must identify and develop best practices centered on the interests of individuals and society. AI offers great promise but also contains great peril.

AI holds out the prospect of improved healthcare and education, climate change mitigation and adaptation, increased agricultural productivity, heightened factory efficiency, and many other gains, some of which are apparent, others of which are yet to be imagined. It would also support fundamental changes in democratic practice. Existing systems of representation were dictated by the impossibility of informing and aggregating citizens' opinions on a reliable ongoing basis. AI has the capacity to do that reliably and continuously, giving ordinary citizens a larger say in their governing. It also has the capacity to create a more equitable economy – for example, by identifying discriminatory effects and providing solutions.

While AI can do much good it can also do harm. AI entails risks, such as opaque decision-making, gender-based and other forms of discrimination, unwarranted intrusion in our private lives, and much more. AI is making authoritarian regimes more durable. In the 1990s, the median life span of such regimes was roughly 10 years. Now it is twice that long. A study by the Mass Mobilization Project found that the most durable authoritarian regimes are ones that utilize surveillance technology to track and control their people. Once people know that their government is tracking them, they become more compliant. China is the prime example of the misuse of face recognition and other forms of digital surveillance, but it is far from the only regime that's exploiting it.

And governments are not alone in exploiting AI. So too, for example, are tech companies that manipulate people's buying behavior and malicious actors who spread disinformation and discord. Self-interested actors, large and small, are employing AI in ways destructive of personal autonomy and the common good.

Such concerns lead us to conclude that there is a need for a new social contract, one fitted to the AI age and that seeks to maximize the benefits of AI and minimize its exploitation. Without such guidelines, AI entails significant risks to the wellbeing of individuals and nations.

By definition, a social contract is based on the rights and interests of individuals, and what governments and other entities must do and are prohibited from doing to safeguard those rights and interests. Social contract theory begins with the assumption that the power arrangement that individuals would willingly accept is one where they do not know in advance their position in society, whether they will be among its advantaged or disadvantaged members. Reasoning from that assumption, John Locke, one of the first social contract theorists, posited a society that protected life, liberty, and property through lawful restraints on those in power.

The same reasoning contributed to the UN's Universal Declaration of Human Rights, which sets out fundamental individual rights that nations are obliged to protect. The Declaration's Preamble reads in part:

- Whereas Member States have pledged themselves to achieve, in co-operation with the United Nations, the promotion of universal respect for and observance of human rights and fundamental freedoms,
- Whereas a common understanding of these rights and freedoms is of the greatest importance for the full realization of this pledge,
- Now, therefore, The General Assembly,
- Proclaims this Universal Declaration of Human Rights as a common standard of achievement for all peoples and all nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms and by progressive measures, national and international, to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the peoples of territories under their jurisdiction.

Since its proclamation in 1948, the Universal Declaration of Human Rights is credited with inspiring dozens of global, regional, and national human rights pronouncements. A social contract for the AI age would have a similar goal. It would define norms for the use of AI, thereby setting a standard that can guide nations, international and regional bodies, firms, and individuals.

The AI Social Contract would seek to balance power among governments, firms, civil society, and individuals and would aim to promote human rights, strengthen norms and common values, protect property rights, and enhance global cooperation, peace, and security.

AI Social Contract – Objectives and Principles

The goal of the AI Social Contract is to help build a multi-stakeholder AI- intensive society in all aspects of life. It urges everyone to value innovation, philanthropy, and mutual respect. It seeks to foster a world where everyone's contribution is recognized and everyone has a right to education and has ready access to information and technology, where no one is above the law, and where integrity, knowledge, creativity, and honesty are seen as key values in shaping policy and society.

Stated differently, the Social Contract seeks to foster a world where all stakeholders are recognized, and all forms of governance adhere to basic values and are accountable and transparent. It is a world where collective action makes it possible to address and resolve global challenges. The Social Contract's principles include but are not limited to the following:

a. That AI must serve fundamental human rights such as human dignity and privacy protection;
b. That AI systems must be evaluated from a multi-stakeholder perspective, not what might work to the advantage of a single stakeholder;
c. That AI must foster the development of a fair, equitable, and prosperous global community;
d. That social policy must be transparent, accountable, and informed by trustworthy data;
e. That individuals and communities must have control over their data;
f. That citizens have access to relevant information and that digital and data literacy be part of every citizen's education.

AI Stakeholders: Commitments, Obligations, and Rights

As a framework for society in the AI age, the Social Contract would balance power among governments, businesses, civil society, and individuals. It would require major stakeholders to uphold common values and norms.

Individuals

Individuals have a right to privacy in the digital realm, including freedom from government surveillance and from intrusion by firms and other outside parties. Access to and control over personal data is also protected from unwarranted action by government or firms. A secure digital identity is part of this protection.

Freedom of expression on the Internet is also guaranteed to individuals. Included in this guarantee is freedom of access to public affairs information on the Internet. "Free expression" is meaningless if government controls what people can see and hear. A guarantee of meaningful citizen participation is also essential. Free expression is a means to an end – a way for citizens to influence government and other parties on decisions affecting them.

Individuals have a right to the means of accessing the Internet and to knowledge and education pertaining to the use and impact of AI. Elimination of the "digital divide" and other barriers to participation in the digital revolution is imperative.

Rights entail responsibilities. Individuals are prohibited from engaging in socially disruptive behaviors, such as hacking, engaging in hate speech, and the dissemination of disinformation. Provided that their privacy is protected, individuals are obliged to contribute personal data that can inform public policy and service delivery, such as access to health care.

Governments

Governments must create norms, laws, and regulations aimed at ensuring that AI serves the interests of individuals and society. They must respect and implement universal standards of transparency and accountability, while also constructing an AI and Internet ecosystem that fosters a people-centered economy and nurtures healthy lifestyles.

Governments must protect and promote IP rights and ensure that citizens have unimpeded access to Internet content. They must also enable individuals to control their personal data, while creating systems for capturing data that support AI applications aimed at improving public policy and services.

Governments must ensure that citizens have access to the Internet, and the training and education necessary for citizens to use that access to improve their lives and to have a voice in their governing. Governments should create incentives for individuals to use AI in ways that benefit society.

Governments must uphold citizens' right of privacy, control of personal data, and participation in the governing process. Governments must refrain from uses of AI that would manipulate, coerce, or suppress citizens because of their political beliefs, gender, race, religion, ethnicity, or any other such characteristic.

Business Entities

Earlier social contracts for the most part addressed only the rights of individuals and the obligations of government. The AI Social Contract is different in this respect. The threat to privacy and control of personal data, for example, is not solely from government. It comes also from search engines and social media platforms.

Business entities must adopt common AI values, standards, norms, and data ownership rules, and expect penalties for noncompliance. They must allow independent audits to ensure that their use of AI is transparent, fair, accountable, and secure.

Business entities must be encouraged through incentives to do business only with entities – governmental or private – that comply with AI norms, standards, laws, and regulations.

Civil Society Organizations

As a connecting link between individuals and government, and in some case with business entities, civil society organizations have an important role in ensuring that the AI Age serves the interests of individuals and society.

Civil society organizations must comply with common AI values, standards, norms, laws, and regulations. They must also assist in ensuring that governments and individuals comply.

Civil society organizations should collaborate with governments, business entities, and others to create a people-centered AI, Internet, and data ecosystem that empowers individuals in their life and their work. They should support AI users in ways that help them to serve the broad interests of society. They should enable creation of Data Cooperatives – the voluntary pooling of personal data that can then be used in AI applications that benefit individuals, groups, and communities.

Civil society organizations should help foster a society where AI is perceived as a common resource, where knowledge and critical thinking are valued, where AI literacy is prized, and where broad political participation is seen as a right and an imperative.

AI Social Contract and the International Community

With the typical social contract, it is necessary to think only of the nation state and whether it is adhering to prescribed laws, principles, and norms. But data transcends national boundaries, and involvement of the international community is required to fulfill the goals of the AI Social Contract.

> The international community has acknowledged the challenges and opportunities of AI, as well as the problems and peril. At least 20 countries have announced formal strategies to promote the use and development of AI. Although no two strategies are alike, there are similarities, most often with respect to:
>
> - Scientific research,
> - Talent development,
> - Skills and education,
> - Public and private sector adoption,
> - Ethics and inclusion,
> - Standards and regulations, and
> - Data and digital infrastructure.

AI is also becoming a focus of foreign policy and international cooperation – for both developed and developing states. It's become apparent that no country will be able to compete or meet the needs of its citizens without substantial AI capability.

The threats and challenges of AI will not yield to incrementalism and, if action is delayed, it will be less likely to succeed. Many of the problems are already deeply entrenched, a trend that shows no sign of slowing and, given the pace of technological change, will almost certainly accelerate. An AI International Accord (AIIA), rooted in the principles of a social contract that have been outlined in this chapter, is urgently needed. It would serve as the foundation for a more peaceful and secure world and for advancing human rights, economic prosperity and equality, and self-determination.

A starting point in securing international agreement on a AIIS could be the world's democracies. Their values and legal systems are most closely aligned with what the AI Social Contract would require of governments. They are also the nations that are most likely to regulate business entities in the public interest and to be receptive to the role that civil society organizations can play in promoting citizen participation and digital access.

The involvement of international organizations, and of the United Nations particularly, is essential. An ideal arrangement would be a UN Convention on AI that would obligate governments to comply with international rules and norms aligned with a AIIA. To monitor and assist with compliance, the UN could establish a specialized UN agency on AI.

Acceptance by AI associations and AI multinationals is also essential. The private sector is where AI development is concentrated, and AI-based firms have indicated a preference for self-regulation as opposed to government regulation. Self-regulation can be effective if kept within limits and if accompanied by clear norms and principles of the type embodied in the AI Social Contract. AI associations and AI multinationals should endorse a AIIA and develop ethical codes rooted in it.

There should also be an independent organization that would create a system for monitoring governments and firms for their compliance with a AIIA. Freedom House and other such organizations exist to monitor policies and behaviors in other spheres. These organizations lack formal authority but have the standing to call out noncompliant actors and to identify areas where progress is being made, and where additional progress is most needed. In the case of AIIA, any such organization would have to be structured, staffed, and funded in ways that confer authority and legitimacy on its assessments and judgments. Support for and endorsement of its mission by like-minded nations would also be critical to its success.

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Imagining a New World – AI World Society (AIWS)

ZLATKO LAGUMDZIJA
FORMER PRIME MINISTER OF BOSNIA-HERZEGOVINA

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> *We cannot conceive of any end or limit to the world, but always as of necessity it occurs to us that there is something beyond.*
>
> - Francis Bacon

The world is undergoing changes unseen in a modern history. Facing global threats like new types of virus, climate change and environmental pollution, ongoing alert of nuclear Armageddon as well as uncharted territory of impact of Digital Transformation and Artificial Intelligence, no country can manage alone or stand aside. Dialog, Respect, Learning, Understanding, Solidarity and Cooperation stands as our most powerful weapon for fulfilling Sustainable Development Goals and securing a shared future instead of "Doomsday Clock" hitting Midnight.

Just to remind you that Doomsday Clock has been maintained since 1947, when it was initially set up 7 minutes to Midnight, by the members of Bulletin of Atomic Scientist. It is a symbol which represents the likelihood of a man-made global catastrophe, including nuclear risks, climate change, negative outcomes of life science and technology, as well as wrong policies that could produce irrevocable harm to humanity.

Golden age the World according to the Doomsday Clock, was set at best ever record of 17 minutes to Midnight, back in 1992, while at the very same time, for example, my country was going through the toughest and bloodiest time in modern history.

Today the Doomsday Clock is at its lowest peak, being closer to Midnight than 1953, when the USA and USSR started testing hydrogen bombs and before Korean peninsula war ended the clock stopped 2 minutes to Midnight...

Four years ago, after the US pulled out of the Paris Agreement, the World Doomsday Clock stopped at 2 minutes to Midnight again like back in 1953.

It was moved further to 100 seconds before Midnight in January 2020 based on increased threats to global stability posed by "a nuclear blunder" exacerbated by the rate of climate change. Latest AI and cyber developments as well as Corona were not taken into account yet.

At the same time China is getting better than ever in modern history. Most of the places in the World are in better shape than at the end of last century. With all the problems facing today, my country is significantly and irreversibly in better shape than 1992.

But none of us is an isolated island that can escape if Doomsday Clock hit the Midnight.

> *The good we secure for ourselves is precarious and uncertain until it is secured for all of us and incorporated into our common.*
>
> - Jane Adams

So where are we today? What are our common threats and opportunities? How can we overcome our fears and fulfill our goals? Why do we have no alternative unless we work together on our common journey?

We live in a time of great social changes, greater economic growth and the greatest technology progress.

Society, economy and technology was going through three greatest changes in their history but with three significantly different speeds.

We entered the Third Millennium marked with a growing impact of knowledge in science and technology. As Aristotle named those 2 types of Knowledge – Episteme (science or knowledge of principles) and Techne (making, crafting or doing) were changing our lives as never before.

In order to start going in the right direction we have to move beyond Aristotle Episteme and Techne to the third type of knowledge known as a Phronesis – wisdom or intelligence.

This can be seen as another call to leaders to show wisdom and leadership using science and technology in order to move our planet in the right direction – Age of Global Enlightenment.

In order to make our ideas live we have to work on their refinement. Ultimately those endeavors have to be accompanied not only with right means and tools but with establishing proper governance structures as well.

Short history of the Artificial Intelligence World Society (AIWS) by listing just a few activities is a great example in great mosaic building blocks of forthcoming Artificial Intelligence Age hoping to be the Age of Global Enlightenment.

November 2017, Governor Michael Dukakis and Mr. Nguyen Anh Tuan launched the Artificial Intelligence World Society (AIWS) as a set of values, ideas, concepts and protocols for standards and norms whose goal is to advance the peaceful development of AI to improve the quality of life for all humanity.

April 2018, BGF-G7 Summit Initiative introduced the 7 layer-model of AIWS as a model of a society.
Year later, the AIWS-G7 Summit Initiative introduced details of the AIWS Model as well as details of AI-Government, AI-Citizens. The AIWS Model envisions a society where creativity, tolerance, democracy, the rule of law, and individual rights are recognized and promoted; where AI is used to assist and improve government decision-making; and where AI is a means of giving citizens a larger voice in their governing.

August 2020, BGF introduced AIWS City as a practice of AIWS at the United Nations Centennial Roundtable, with Father of Internet Vint Cerf as a keynote speaker.

September 2020, BGF launched Social Contract for the AI Age, followed by BGF and Club de Madrid co-organizing the Policy Lab about the Social Contract for the AI Age, calling world leaders and institutions to endorse and support it.

April 2021, BGF organized the conference AI International Accord to launch the Framework for AI International Accord.

Implementation of the core document, The Social Contract for the AI Age, is a long-term process of all stakeholders' activities such as:

The creation of a system to monitor and evaluate governments, companies, and individuals (based on their contribution to maintaining norms, standards, common values, and international laws for honesty, transparency, accountability, and responsibility).

The recognition of the Social Contract for the AI Age by the United Nations, governments, companies, civil society and the international AI community.

The establishment of a United Nations Convention on Artificial Intelligence to obligate governments and others to comply with international rules and norms to protect rights in the AI age.

The development of the Democratic Alliance for Digital Governance as the global authority to enforce the Social Contract for the AI Age.

The creation of the "AIWS City"—an all-digital virtual city based on the standards and norms of "the Social Contract for the AI Age", "People Centered Economy", "Trustworthy Economy", "AI-Government", and "Intellectual Society-Thoughtful Civil Society.

A New Social Contract in the Age of Artificial Intelligence recognizes that advances in AI have already altered conventional ways of seeing the world around us. This is creating new realities for everyone – as well as new possibilities.

Just as earlier social contracts helped shape societies for a common purpose, the Social Contract for the AI Age has a transformative vision, one that transcends the technological features of artificial intelligence and seeks to provide foundations for a new society.

The Social Contract for the AI Age would create standards for a new international system. It focuses on the conduct of each nation, relations with international business and not for profit entities, and the cooperation of nations. Just as TCP / IP is the platform for communication among internet users, the Social Contract for AI Age is a platform for connection among governments, stakeholders, and private and public institutions.

The Social Contract for the AI Age seeks to build a multi-stakeholder, inclusive society in all aspects of life across politics, government, economics, business, and industry. The Social Contract for the AI Age values creation, innovation, philanthropy, and mutual respect. It seeks the right of freedom on, and access to, the Internet worldwide.

In short, the Social Contract for the AI Age seeks to build a world where all are recognized and valued, and all forms of governance adhere to a set of values and are accountable and transparent. It is a world where global challenges are met by collective action and responsibility.

It is not only about how many ideas any one of us have, but it is about how many of them we ultimately make a living by working together with other stakeholders along shared vision & values.

That is why Social Contract for the AI Age is followed by AIWS Artificial Intelligence International Accord Initiative with clear Purpose and Scope

- Defining methods to present abuses by governments and businesses in use of AI, Data, Digital Technology, Cyberspace
- Articulating norms to manage robotics and cyber security, protecting Social Contract for the AI Age, democratic values, transparency, and accountability while ensuring equal opportunities across diverse socio-economic landscapes.
- Sanctioning entities – including governments, businesses, and not-for profit actors – who violate the AI International Accord and/or Social Contract for the AI Age.
- Creating an initial framework for the AI International Accord
- Establishing a World Alliance for Digital Governance focused on supporting to support the AI International Accord and the Social Contract for the AI Age
- Designing a Monitoring System to observe all abuses in applications of AI by private and public entities, and to identify notable violations of an emergent AI International Accord and of the Social Contract for the AI.

All of those endeavors have to be accompanied with establishing proper governance structures which can be at this stage named as an International Artificial Intelligence Agency (IAIA).

> *Nothing in Nature stands still; everything strives and moves forward.*
>
> - Johan Gottfried Herder

Eight decades ago, physicists were not deciding about what to do with atomic energy. Now computer scientists are not exclusive masters in deciding what to do with their inventions.

To put it from another perspective, like the war is too serious to be left only to the generals, the same way AI is too serious to be left only to computer scientists. And another way around as well.

Having in mind lessons from our recent history and UN dealing with atomic energy I will make a few short remarks about Global Governance of AI and Internet Ecosystem for work and life in the context of the AI International Accord that are requiring faster and more profound actions.
January 24, 1946, UN Atomic Energy Commission (UNAEC) was founded by Resolution 1 of the UN GA in order „to deal with the problems raised by the discovery of atomic energy ".

UNAEC was officially disbanded in 1952 with increasing threats of Korean war, nuclear race and Cold War dynamics.

The UN and the nuclear age were born almost simultaneously the way that UN and AI can be going through almost simultaneously through the end of the first UN centennial period.

Instead of the UN Commission in 1946, the International Atomic Energy Agency (IAEA) was established in 1957 independently of the UN through its own international treaty, the IAEA Statute. The IAEA, as an international organization that seeks to promote peaceful and prosperous use of nuclear energy, and inhibit its use for any military purpose, including nuclear weapons, reports to both UN GA and SC with membership of 171 out of 193 UN member states.

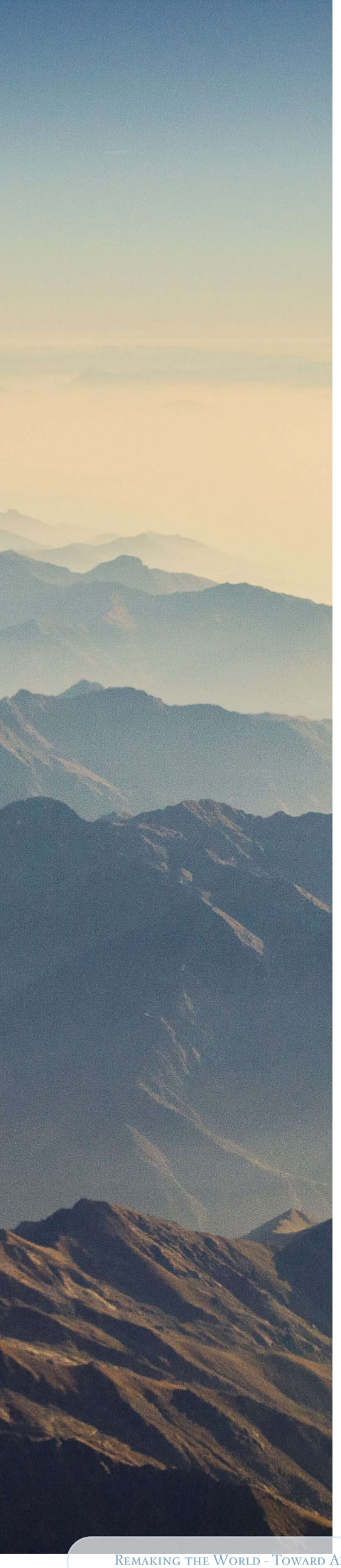
Leadership's call for establishment of the IAIA (International Artificial Intelligence Agency) is urgently needed as a next step of our endeavors to govern "The New AI and Internet Ecosystem for Work and Life" in accordance with the AI International Accord that we are creating while supporting Social Contract for AI Age.

Using the same UN words defining IAEA, we can say that "IAIA is the world's central intergovernmental forum for scientific and technical cooperation in the AI field. It works for the safe, secure and peaceful uses of AI and Digital Governance, contributing to international peace and security in accordance with the Universal Declaration of Human Rights and to the UN SDGs."

The question remains do we have 10 years' time like 6 decades ago to move from Commission to functioning Agency dealing with Artificial Intelligence like it was the case with Atomic Energy.

> *The darkest hour of the night comes just before the dawn.*
>
> • Thomas Fuller

We have faced devastating challenges before. Europe faced similar dilemmas in 14th century with the tragedy of the Black Death or Bubonic Plague when that time the overall global population of 450 million was devastated with estimates of between 20 and 45% people across Europe, Asia and part of Africa believed to have perished in the pandemic. Estimated death toll in Europe was 40-50%. Venice and Florence, cities with 120.000 approximate population prior to Black Death were scaled down for 60 and 65% of the population who perished. Black Death, middle Ages were followed with Rebirth more known as Renaissance. Surge of interest in Classical scholarship and values, discovery and exploration of new continents, decline of feudal system, growth of commerce, invention or application of such potentially powerful innovations as printing and mariner compass...



It was primarily a time of the revival of Classical learning and wisdom after a long period of cultural decline and stagnation. Renaissance can be seen in European architecture, art, literature, mathematics, music, philosophy, politics and science.

My dear friend Mateo Renzi, former Italian Prime Minister, in one discussion we had about education, told me that he is most proud of the time when he was Mayor of Florence known as the heart of Renaissance, home of Leonardo da Vinci, Michelangelo, Giotto... He tried hard in all his positions but never managed to come to the heights of his Renaissance predecessors who were directing over 50% of taxes in what we today consider art, literature, music, science and education.

The Age of Enlightenment as an intellectual and philosophical movement that dominated the world of ideas in Europe during 17th and 18th centuries emerged from the Renaissance. Rene Decartes (1637) philosophy of “Cogito, ergo sum” (I think, therefore I am) or Isaac Newtons (1687) “Principia Mathematica” as the culmination of the Scientific Revolution that are seen as the beacons of the Enlightenment can be enlightening reminders of strengths and opportunities that AIWS City and Social Contract for the AI Age can offer.

Although the antecedents of Social Contract concept may be found in antiquity, in Greek and Stoic philosophy and Roman and Canon Law, Social Contract (either termed as “State of Nature” by Thomas Hobbes, 1651, or “Social Contract” by Jean Jacques Rousseau, 1762), emerged in Age of Enlightenment as the leading doctrine of political legitimacy.

This short reminder of how we emerged in Europe from Black Death to Renaissance, Enlightenment and Social Contract having “tools and means” of art, literature, music, philosophy, science, education and culture, is strengthening my optimism about shared future in the very beginning of Post-Corona Era and the AI Age in search for the Age of Global Enlightenment...

Current Epidemic, Environmental, Economic, Social or Political crisis and threats require “New tools and means” or the New Normal - New Renaissance, New Enlightenment and New Social Contract. Growing speed of change, our experience and enormous capacity built in our culture, heritage, history and knowledge makes these great tasks possible in significantly shorter time than our great predecessors needed.

In this context I see SDGs, in general, and concepts like “Social Contract for the AI Age”, “The People Centered Economy”, “Trustworthy Economy”, “Shared Value”, “Stakeholders Economy”, and “Circular Economy”, in particular, as transformative tools and means for creating a complex elements and goals of great mosaic reflecting different perspectives of our prosperous and shared future.

> *The pessimist complains about the wind; the optimist expect it to change; the realist adjusts the sails.*
>
> - William Arthur Ward

Now, with AIWS that include: 7-layer model, Social Contract for the AI Age, Framework for AIIA, Concept of new economy and finance system, AIWS Values and the AIWS City, it can be concluded that AIWS become a doctrine for remaking the world – the Age of Global Enlightenment.

Sixty years ago, President John F. Kennedy put the United States on a mission to the future. "I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish."

Our generation's Moonshot is not going to Mars or living on the Moon but having a shared future in shared societies, prosperity and sustainable development on Earth while avoiding and managing nuclear threats, avoiding climate change and mastering technological disruption and AI. Today it is not only that we are incomparably more technologically powerful but economically as well.

Our generation Mission Moonshot – Living on Planet Earth - is not possible only because we have technological or economic power, but it requires that the World is being more defined by the "Golden" word of our future - Shared.

Shared: Societies, Sustainable Development, Vision, Values, Peace, Prosperity, Wellbeing, Education, Economy, Technology, Knowledge, Responsibility, and Leadership for the future in Dignity.

Shared and sustainable societies as ones in which all individuals have a common sense of belonging and responsibility where inclusion and their identity differences are their asset not their liability.

We are all different, as a people and as a nation, but at the same time there is much more that puts us together while understanding each other, than divide us along different lines while confronting us.

There is a tide in the affairs of men.

Which taken at the flood, leads on to fortune.

Omitted, all the voyage of their life is bound in shallows and in miseries.

On such a full sea are we now afloat.

And we must take the current when it serves, or lose our ventures.

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AI in the next century of the United Nations

VAIRA VĪĶE-FREIBERGA
FORMER PRESIDENT OF LATVIA

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AI in the next century of the United Nations

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By 2045, when the United Nations Organization will be entering the second century of its existence, the world will have changed in many substantial ways. A significant part of these changes will be due to the pervading influence of Artificial Intelligence (AI), which will have become more powerful and flexible than it is now and more omnipresent in people's lives.

The development of AI so far has been going hand in hand with rapid technological advances in electronics, telecommunications and robotics, with the result that the number of tasks heretofore considered as needing a human operator has been inexorably decreasing. Not only are cities populated by highly paid auto industry workers a thing of the past, but human drivers of cars will also soon be an anachronism. The areas once considered as the ultimate bastions of the exceptionalism and singularity of human cognitive functioning are melting away like snow under spring sunshine. Machines beat humans at chess, AI algorithms make better medical diagnoses than highly experienced specialists, they solve problems faster by avoiding the fallacies inherent in human reasoning and are at least as good at facial recognition. Not only that, but they can search through staggering masses of Big Data at lightning speed and have already made former notions of human privacy as outdated as the beliefs that witches are the ones responsible for storms.

A major consequence of progress in AI will be continuing increases in wealth generation, unhampered by the limitations imposed on it by human frailty, human rights, ideological principles, political agendas, national laws and regulations, and the power of workers' unions. At the same time, the number of jobs will be decreasing, and the remaining ones will require skill levels impossible to attain by more than half of the population. Since people will have longer life-expectancies, the numbers of older people no longer active in the work-force will inevitably keep rising, as will the number of people requiring assisted living. In countries with high birth-rates, there will be more young people ready for the job market who will find themselves unable to enter it. The major challenge this will create for leading institutions like the UN will be to establish principles by which aggregate wealth will be redistributed fairly, with sufficient regard for human survival and dignity, not just for the profits of the investors and major shareholders of international corporations. This will mean entering boldly the fields of ethics and moral principles, continuing to seek consensus on overarching guidelines that can be accepted as transcending differences in culture and religious beliefs (or the lack thereof).

The last few decades have already shown that productivity may keep increasing spectacularly, but the purchasing power of the workers who still have jobs has remained constant. In other words, there has been an increasing concentration of wealth, rather than the kind of fair redistribution that is presumably one of the pillars of democracy. Considering that even now only 1% of the world's population holds up to 80 to 90% of the world's wealth concentrated in their hands, one shudders to think about a Brave New World in which, thanks to AI, a small handful of individuals would wind up holding more power than nation-states, supra-national organizations like the EU, and international organizations like the UN. Add to this the increasing concentration of media in ever fewer hands, and the scene will be ripe for an automated world dominated by robots and AI applications, while humans as unemployed worker ants are kept under control by brain-washing and sophisticated manipulation of information.

During the first decades of the new millennium, the UN was rightly concerned about the effects of the digital divide on economic development world-wide. As we enter the third decade of the 21rst century, the digital divide has been shrinking at a truly impressive rate, but the same concerns remain about the accessibility to the benefits of AI for developing as well as for developed countries. In a Post-Information age in which AI is going to be a major player, the UN needs to maintain a leading role and keep reminding its member nations about achieving not just the Sustainable Development Goals for 2030, but to work toward forming a consensus about global Development Goals for the new century starting in 2045.

Even as we keep in mind the possible negative effects that AI might create or contribute to, we should also remember that AI, just like other advances in science and technology, will undoubtedly produce enormous benefits to humanity. Just as the Industrial revolution relieved people and horses from some burdens of physical labor (while replacing them with others!), AI is already making life easier, safer, more interesting and more enjoyable for a growing number of people.

As rapid progress has occurred in the speed and memory capacity of computers, as well as in the miniaturization of electronic circuits, the increasing sophistication of artificial devices, together with advances in neurophysiology, has allowed for spectacular innovations in man-machine interactive systems that can serve as increasingly powerful and flexible prostheses or extensions of the human body. The enhancement or substitution of sensory-motor processes, such as demonstrated with artificial limbs capable of voluntary control and finger manipulation, navigation guides for the blind, nerve implants for the deeply deaf, etc. has already allowed for radical improvements in the quality of life for many disadvantaged. Smart, self-driving cars, Smart Houses and Smart Greenhouses are already making inroads, municipal and national governance is getting more and more automated while more and people spend more time interacting with their Smart phones than with their family, friends and neighbors.

The only thing missing in the AI world is Smart people who will be smarter all on their own, without aid or support of electronic props and prostheses. Who needs to be able to quote poetry or remember any facts, when they can be instantly summoned by a few flips of the finger? But what happens to human faculties when they all but go dormant, especially after a certain number of generations? There used to be a story told to biology students about a species of salamander that had been discovered in underground caves completely cut off from any access to daylight. Not surprisingly, they were completely white, without the least trace of pigment in their skins. Equally unsurprisingly, they were also blind. The reason for this, however, was not just an atrophy of visual functions, but the total loss of eye development early in their embryonic development. The moral of the story is that morphological structures as well as the functions they perform will atrophy without use, that is, without continued feedback from the environment in which they had originally evolved.

This is why it is comforting to know that UNESCO has already started to work on a vast program which will delineate the features of the kind of Education for Tomorrow that humans will need in the next century. We have to be careful, as a species, that we do not lose all the advantages that millions of years of evolution have left as our heritage, whether through inertia, laziness or overweening pride and arrogance. And, while we are at it, of course we also have to think of preserving our planet in a shape where it continues to be fit for human habitation. The planet will not care whether its dominant species are humans, salamanders or cockroaches. We are the ones who do care. Or should.

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AI – Risks and Opportunities

ŽANETA OZOLIŅA
UNIVERSITY OF LATVIA PROFESSOR, AND DIDZIS
KĻAVIŅŠ, UNIVERSITY OF LATVIA SENIOR RESEARCHER

The United Nations (UN), as the most representative international organization, has put a wide range of issues on its agenda. It is not closed, but is growing geometrically in progress. One of the issues that will only grow in importance in the coming decades is artificial intelligence (AI), and it is in the hands of the UN that the levers of multilateral solutions are in place. Due to expansion of big data, advanced algorithms and fast computing power, AI has become a highly demanded technology of the 21st century. Although AI may seem like a recent phenomenon, it is actually a rather misconception. The evolution of artificial intelligence can be divided into three stages of development. The first is the prehistory of AI, which can be characterized by the findings of researchers from different disciplines, and without whose contribution AI as a set of sciences, theories and techniques would be incomplete.[6] The second stage is the formal foundation or the birth of AI as the discipline in 1956, when was held the first academic workshop on the subject at Dartmouth College.[7] The third stage is a new and fast-growing AI industry in the 21st century, especially in the last decade. AI as once described by Marvin Minsky, one of the founding fathers of AI, as "the science of making machines do things that would require intelligence if done by men" (Minsky, 1968: v) has become a highly disruptive technology that can significantly challenge global politics and the world order. AI can undoubtedly be a significant challenge for anyone. In view of the above, the aim of this article is to highlight the potential risks of acquiring and deploying AI, as well as to support the idea of a comprehensive AI framework that would be strengthened by enduring initiatives.

6 As Pierre Marquis, Odile Papini and Henri Prade (2014: 609) aptly point out, many important elements of AI can be traced back at least 350 years before the official birth of AI, and this stage is characterized by "the formalization of reasoning and the design of machines having autonomous capabilities in terms of computation and action".

7 John McCarthy, organizer of the Dartmouth Summer Research Project on Artificial Intelligence, also coined the term AI as "the science and engineering of making intelligent machines, especially intelligent computer programs" (McCarthy, 2007).

Risks and UN involvement

While AI technologies and applications continue to evolve and shape many industries and sectors such as security, transportation, and healthcare, the AI field in general "is shifting toward building intelligent systems that can collaborate effectively with people, including creative ways to develop interactive and scalable ways for people to teach robots" (Stone et al., 2016: 9). Areas of AI research such as conversational AI, large-scale machine learning, robotics, Internet of Thigs (IoT), deep learning, natural language processing, neuromorphic computing, reinforcement learning, computer vision, collaborative systems, algorithmic game theory, computational social choice, crowdsourcing and human computation are experiencing rapid popularity nowadays (Yao, 2020; Stone et al., 2016: 9). In turn, rapid growth of technology and investments, which are needed to ensure pace and quality of innovations, cause fragmentation in AI area. There is a risk that multinational companies could overtake markets and small as well as mid-size companies could be squeezed out from the global market. It could have several consequences – countries with not so advanced ICT sectors could fall into poverty trap and it could leave impact on quality of life of millions of people. Moreover, red line – pressure from private sector, minimizes application of social contracts and ethical norms, as well as transparency and accountability.

There are other risks, such as national desires to over-control AI in the face of global trends. The question is how far the regulation is proportionate and serves the benefit of society and industry. There are also concerns that the gap between countries that set high standards respect human rights and those that introduce AI without borders will widen. The question arises as to how to balance the desire for democratic values and meaningful regulation with certain groups, namely the desire of business, the political regime or individual countries to achieve technological excellence without regulation, which is considered to be disruptive.

Although national reports and commitments on AI are becoming more common, there is a lack of a common framework. Meanwhile, the promise of AI as a public good and sustainable competitive advantage speed up the AI race among countries. While authors such as Nicholas Wright (2018, 2019) has addressed the coming competition between liberal democracy and digital authoritarianism in the context of AI, there is a high risk that AI competition will increase the disparity of wealthy and poor countries. Considering that AI-driven technologies are playing an increasingly important role in issues such as autonomous weapons, surveillance and censorship, ethics and principles of AI should be set and monitored by the UN.

To make the world prosperous and universally secure, the UN has an immediate responsibility to map and launch a comprehensive AI framework that will encourage governments to work with the general public and industry on how artificial intelligence is developed and used. In order to prevent unauthorized and unrestricted use of AI, the Draft Framework for Artificial Intelligence International Accord (AIIA), presented at the AI World Society (AIWS Award) and AI International Accord Roundtable hosted by the Boston Global Forum (2021), addresses "measures to be taken" in the following areas: 1) Individual Rights and Responsibilities; 2) Imperatives for National Policy; 3) Collaborations among States; 4) United Nations and International Organizations; 5) Business Entities; 6) Civil Society. Above all, as Ambassador Stavros Lambrinidis (2021) has rightly highlighted, "exploring a Social Contract for the AI Age – a framework to ensure an AI "Bill of Rights" in the digital age – is fundamental in international relations today".

AI as a doubled-edged sword has power to "disproportionately affect populations in the developing countries" (He, 2018). In order to limit and reduce gaps between the advanced economies and emerging economies, the UN has moral obligation to promote a sense of shared responsibility in the field of AI. By launching the comprehensive AI framework, it is crucial to strengthen resilient economies. As a catalyst and driving force for the Sustainable Development Goals, the UN must ensure the blueprint has close connection to the main settings. After all, AI technologies should help to address rather than increase the global challenges, including poverty, inequality, climate change and peace.

Strengthening diplomacy

Raising problems in foreign policy (AI-powered technologies) already marks a wide field of action. According to researchers such as Ben Scott, Stefan Heumann, and Philippe Lorenz (2018), economic disruption, international security, and democratic ethics are just some of the issues that require a new and effective toolbox for an AI foreign policy and diplomatic practice. In fact, national ambitions in foreign policy are most directly transforming diplomacy. Although AI-driven technologies have a growing influence on foreign affairs, they do not change the core of diplomacy. On the contrary, the significant advances of AI clearly demonstrate the importance of further strengthening the main functions of diplomacy - representation, negotiations and communication.

The growing competition in the field of AI has highlighted the necessary changes much more strongly and comprehensively, not only in the national foreign services, but also in the use of diplomacy in international organizations. The UN and its specialized agencies are no exception. On the contrary, the UN should play first fiddle in the global AI agenda. This, in turn, means that those involved in diplomatic negotiations must have high level of knowledge and competence in AI to be able to justify the need for a comprehensive AI framework and its benefits to society. Allocating funding for staff development and the integration of AI-powered technologies for work needs is also a decisive factor in the long run. In order to succeed with the comprehensive AI framework, and strengthen the UN role in empowering communities, listed below are a few of the initiatives that can make a significant contribution.

The UN-driven initiatives

Strengthening AI ecosystem and Governance

AI is not a subject of closed professional groups but subject of all those who are consumers and producers. The UN should also play a leading role in launching AI ecosystem by social contract and introducing a new and innovative model of governing AI.

Success of AI ecosystem depends on the fate of multilateralism. At the present moment we face fragmentation of established international order based on the collaborative spirit. Trust in efficiency of international organizations and power of international society is regularly questioned. In addition, there are increasing alarming statements in the public sphere that this faith has almost been lost. Belief in multilateralism needs to be restored and debate on AI can help to restore this faith. Thus, the UN has to invest in building new model/s of multilateralism based not exclusively on governmental but more on open interconnected webs of non-governmental networks.

Human security and gender equality in AI

It is important to strengthen AI's potential to protect human security, which reflect "freedom from fear" and "freedom from want". Easy access to human security programs is fundamental. As rightly stated by Heather M. Roff, "human security is not for an elite few, and so the capabilities of AI must be within everyone's grasp" (Roff, 2018: 27).

Given that the IT sector is still male-dominated and AI may poses threats to gender equality, the UN needs to promote programs that promote women's involvement in AI projects, with a special focus on developing countries.

Research and education

Ambitious research programs need to be put in place by the UN in order to organize a smarter world. These programs must be inclusive, regardless of national financial capabilities. Furthermore, essence of the AI ecosystem will depend on education and training of younger generation in schools. The UN should create expert groups elaborating school programs on AI. It is critical to implement practical AI-related projects, in which developing countries are actively involved. International cooperation will also help bridge the gap between countries and minimize inequalities.

Conclusion

The impact of AI technology on world politics is almost ubiquitous. Although the manifestations of AI are different, they are united by a common goal - "to create computer software and/or hardware systems that exhibit thinking comparable to that of humans, in other words, to display characteristics usually associated with human intelligence" (Lucci and Kopec, 2015: 6). While the majority of governments are lagging behind global companies on AI, the UN has moral obligation to make the world prosperous and secure by launching a comprehensive AI framework. Diplomacy can play a masterful role as a mediator to help find a compromise between the parties involved. Keeping in mind that AI-powered technologies have great potential to rearrange winners and losers in global markets, and thus affect the balance of power in world politics, the diplomatic institutions and diplomatic practices require a holistic assessment and adaptation road-map in this regard. In order to overcome disagreements and find the 'AI commons', it is crucial to strengthen diplomacy (both expertise of AI and increasing funding) and launch far-sighted initiatives. The launch of the AI ecosystem, finding an innovative model of governing AI, protecting human security and gender equality, enhancing AI research and education are just a few steps in this direction. In an effort to remake the world better with AI-driven technologies, it is important to remember that AI will depend in the future not so much on the ability and skill to produce artificial but on intelligence of human beings.

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17

A People Centered Economy

VINT CERF, GOOGLE VICE PRESIDENT
& CHIEF INTERNET EVANGELIST

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(Speech of Vint Cerf at the Boston Global Forum/United Nations Academic Impact Roundtable on August 21, 2020)

Let me thank Tuan for inviting me to participate in this meeting. The topic is something of central interest to me. The whole idea of people centeredness for all that we do both in our society, in our work, in our other endeavors, in our family and home, is all absolutely essential and why should we have to raise this point of people-centeredness? It's because we have become a society that is deeply dependent on machines. We are a creative species, we are a species that are tool makers, and as our history has unfolded, we have increased our dependence on and our ability to create machines that work for us or help us do our work. So I think that it's very important for us to recall the people-centered focus that we are drawn to in today's discussions. I loved the point that was made about living at work. I'm down in my basement right now and I've been down here for almost five months since coming down with Covid-19 in March and recovering in April and now my company has shut its doors for at least for the present then probably as long as the July of next year. So I too am living at work although I'm actually rather happy. Normally I would travel 80% of my time and now I haven't traveled at all. Which means with the click of a mouse, I can go from Australia to Austria and be home for dinner! So this is not such a bad situation for me, but it is a terrible situation for millions around the world, perhaps billions in many different dimensions, but that's not exactly the topic we want to cover today.

Today, I want talk first about a brief note about the history of internet because I believe that history informs us as we think about the newest tool that we have which is machine learning and artificial intelligence. So let me take you back to the 1960s and point out that one of the key insights into the world that we have now, the 21st century, was an alternative to the telephone system, it's called packet switching. And I won't bore you with all the details but it's basically computers using electronic postcards to communicate with each other. That key concept led to an experiment by the American Defense Department. The defense advanced research agency decided that it was going to experiment with packet switching as a way of linking computers to each other and it was very successful. The result of that successful experiment was to ask whether we could use different kinds of packet switching over radio and satellites in addition to dedicated telephone circuits to link multiple networks of computers together. That was called the internet and that too was very successful.

It began to expand especially in the 1980s and then in the late 1980s, early 1990s, Tim Berners-Lee at the Cern facility in Europe invented what we all know as the world wide web. This was an enormously powerful application that allowed information to be easily injected into the internet and be consumed. It included formatted text and imagery, and eventually sound and video. And that's what we are seeing today in this call is all of those media at the same time. The introduction of the world wide web was a dramatic event and over the decades that have followed, many, many new applications have been designed and built to fit within that framework and so that was a very powerful milestone. Companies have been formed across the entire range of internet requirements from the low-level communications system (radio, dedicated circuits, optical fiber), all the way up to the apps that we run on our smartphones. Which brings me to another big milestone in 2007, the arrival of the smartphone from Apple. Not to forget that Nokia had been doing some very smart phones prior to that but they didn't have all of the features that the iPhone that Steve Jobs introduced. And so that technology merged with the internet and became an extremely powerful mechanism for reenforcing old technologies. The mobile made internet more accessible from anywhere you could get a signal and of course the internet made the mobile more useful because of the vast quantity of information it had available and the applications that could be run on top of it.

Well, that leads to the next problem which is the huge quantity of information on the internet was so vast that nobody could find anything, and search engines had to be invented. And those search engines have become part of our daily lives. The introduction of machine learning and artificial intelligence is not a new idea; it started at the same time as the ARPAnet project the defense advanced research projects agency was investing in research in artificial intelligence in the 1960s, but the tools that were available then, the computing power that was available then, simply did not reveal the potential that we have now discovered with multilayer neural networks. There were attempts to build such neural networks in the 60s and 70s, but they were very small, you know, one or two layers deep, not enough capacity to do the kind of things we do today, which is speech recognition and machine translation and self-driving cars and image recognition for medical care, and you can go on and make a longer list than I can.

So why do I end up here? Well, I end up here partly because that's the topic of today's discussion. What I need for you to appreciate is that the side effects of invention do not always become apparent when they are invented and when they are put to use. Indeed, in some cases it may take decades to understand some depth the consequence of technology and information; phishing, fraud, all kinds of malware attacks, a variety of things people do that are harmful to other people. Now we all understand that in our social history as human beings that these problems have existed in other contexts, so this is not new. It's just a new medium in which these bad behaviors occur. The question of course is what to do about that and the response to this is varied. In some cases, we can take technical mechanisms and prevent the abuse or the harm from happening but that doesn't always work.

The second thing is that we can set unacceptable behaviours and if we detect you acting that way, behaving that way there will be consequences. That's what law enforcement is all about; we agree on a set of behavior patterns that are acceptable for all and others that are not and we prosecute people who are behaving badly. And that of course is if we can catch them and that too is not always possible and so in the end we say, "please don't do that it's just wrong". That's moral suasion and some people will say "Well, that's not very effective", and yet as all of you know, when a large body of people agree on certain behavior patterns as acceptable or unacceptable. There's a lot of social pressure to behavior properly, so I think those three mechanisms must be put to work in order to deal with some of the abusive behavior we see on the internet.

The question now before us is whether we will see similar kinds of problems with the introduction of machine learning and artificial intelligence. And I would say that it's almost certain that we will encounter those kinds of problems as well. Because machine learning is a powerful new tool. And as we explore all of its powerful positive uses which we experience daily we will eventually experience the abuses to which this new technology is put to work and we will be confronted once again with that question on how to manage that problem.

So I want to draw your attention now to some of the things we've already learned about machine learning. And to say a little bit about how to cope about those problems. Once thing that some of you may have encountered is that the machine learning tools, while doing extraordinary things, like the recognition and translation of many languages back and forth, that it also makes mistakes. So it's not better than human beings.

Anyone who thinks a computer program never makes a mistake is wrong. They do make mistakes all the time, part of the reason being that the programmers didn't get the program right. And so the programmer's mistake leads to the computer's mistake leads to perhaps possibly abusive or harmful consequences. So we know that machine learning tools don't always get it right. We also know that some of the failures are quite subtle, although they are also dramatic. So a common example is what are called generative adversarial networks. This is a machine learning system which is trying to fool another machine learning system, so the one system is trying to recognize for example, categories of animals, dogs, cats, elephants, crocodiles, and so one. The other machine is trying to change the images in small and slight ways to fool the other machine. It turns out that its possible to do this with very very small changes.

A common example, you might have trained the machine learning algorithm to recognize cats and dogs and so on. You show it a cat and it says it's a cat. Then the generative adversarial network modifies just a few pixels in the image. To a human being, it still looks like a cat. Through the computer programming algorithm, the machine learning algorithm, it looks like a fire truck. And of course, your response is, "how could it possibly be a firetruck? It doesn't look anything like a firetruck!". And the answer is that the machine learning system doesn't see things the way we do. Human beings have this amazing ability to abstract from images to recognize various features in the images that help us identify things. The machine learning tools are recognizing features but not necessarily the ones that you and I would normally use in order to identify a cat and a dog and a crocodile. This is just one very trivial example of the ways in which machine learning tools can fail and the reason this is so important to us to keep this in mind is that the failures can be very harmful.

This brings us back to the whole people-centered theme of this call which is about designing, building and using and applying technology, keeping its people-centeredness in mind understanding how it will either help or harm other people in our society. So as we start to apply machine learning tools and other artificial intelligence extensions of that, it's essential to have in the back of our minds a sense for how those tools might fail or might be deliberately abused.

We will need an international call for an operation in order to induce and introduce this people-centeredness into the use of artificial intelligence, because we will and use these techniques on a global scale. The internet has already penetrated about 50% or more of the world and of course as the chief internet evangelist of google, I'm hoping that it will be possible for everyone to get access to the internet before the end of this decade and certainly by 2045, if they want access to it. It would not occur to me to force anyone to use the internet, but I would like it to be accessible, available, sustainable, affordable, and useful for anyone who wishes to use it.

So now we have to figure out what the international agreements are going to be, not only to deal with the abuses of the internet and its applications, but also the potential abuses of machine learning. And that is going to require some deep thought and some deep understanding and some dependence on technologists who are much smart than I am, about how those technologies could be abused and what we can do to both detect and defend against that.

And so as we design a people-centered and artificially intelligent world, where the tools get smarter and smarter, we will have to think our way through exactly that set of problems. And so those of you who are on this call and those that you will talk to afterwards, I say to you how important it is that we get this right, that we consider how to effect, a good effect and how we make sure that if they are abused, that we detect and defend against that. And so that's quite a challenge and charge to give to this group but your histories already tell us you are capable of dealing with charges like this and that's why you've been assembled today to talk about this problem and the promise of artificial intelligence and the problems that it may introduce.

To view Vint Cerf's speech:
https://bostonglobalforum.org/news-and-events/events/father-of-the-internet-vint-cerf-talks-at-un-roundtable-2045/

18

Cycle of Prosperity: Ensuring Equal Opportunity

ALEX PENTLAND, MIT PROFESSOR

18

Cycle of Prosperity: Ensuring Equal Opportunity

ALEX PENTLAND, MIT PROFESSOR

Understanding Prosperity

What will the UN 2030 development goals look like? What will we hope to achieve by 2045? I believe...and hope...that the 2030 goals will look very different from the 2015 goals. The reason is that the 2015 Sustainable Development Goals (SDGs) are almost entirely about avoiding harm, and have very little to say about policies that will minimize those harms. This silence is for a good reason: the development path taken by current rich countries is unlikely to be something that less developed countries can successfully follow. So what is to be done? What will be the best path to development in the future?

I suggest that the answer is that the rich data provided by the 2015 SDG metrics can provide the possibility of scientific determination of what sorts of new development policies are likely to be successful [1, 2]. For instance, privacy-safe, anonymized fine-grain data from mobile telephones, credit cards, and other data sources that are used to create the 2015 SDG metrics are already helping decision makers to tackle problems of societal importance [6, 24, 2]. Examples include monitoring socio-economic deprivation [11, 10, 6, 12] and crime levels [4, 13, 14], mapping the propagation of diseases [14, 15, 16, 9], and understanding the impact of natural disasters, environmental risks, and other emergencies [7, 8, 3, 4, 5], etc.

To gain a better understanding of what a science-based policy for prosperity development would look like we can examine smaller regions of the world that already have available such rich data. What we find from such "rich data" science is that neighbourhoods with more diverse amenities attract not only more people but importantly more diverse people, as shown in Figures 1(A) and 1(B). This diversity of people, ideas, and activities acts to increases the rate of innovation within the neighbourhood. Figure 1(C), for instance, shows that neighborhoods with more diverse amenities (and consequently more diverse visitors) have greater year-on-year GDP growth.

This effect accounts for up to half the variation in GDP growth even after controlling for population density, city centrality, and housing prices. That is, diversity in amenities (or, nearly equivalently, diversity of people visiting the neighborhood) is usually a more powerful predictor of growth than density, geographic centrality, or housing price. This data is from a large European metropolitan area' data from three other continents is similar [28].

These three figures show what appears to be the central cycle of development: diverse amenities attract large and diverse flows of people, which create opportunities for investment in new amenities and subsequent increased flows of people. However, this doesn't fully explain why people move to or work in neighbourhoods with more amenities, which are after all more expensive and crowded.

Why is the preference for diverse amenities so universal? The reason may be that neighborhoods with more diverse amenities, which bring in more diverse flows of people, create greater opportunity for those who work or even just visit such neighborhoods. Figure 1(D) illustrates that people who have more exposure to diverse types of people, and thus have more access to new ideas and opportunities, make more money. Moreover, this is not just an artifact of the way the particular way access to diverse communities was measured, because you can get the same result looking at the diversity of jobs of the people they interact with, or the diversity of locations of the people that they interact with. Again, data from four continents shows similar patterns [28].

Surprisingly, the variation that has to do with education is small when compared with the variation that has to do with access to ideas from diverse communities, so it is not just rich neighborhoods or well-educated people who profit from diversity. People in all socioeconomic levels also profit from exposure to a wide variety of people and experiences, although there are systematic inequalities in this relationship [19].

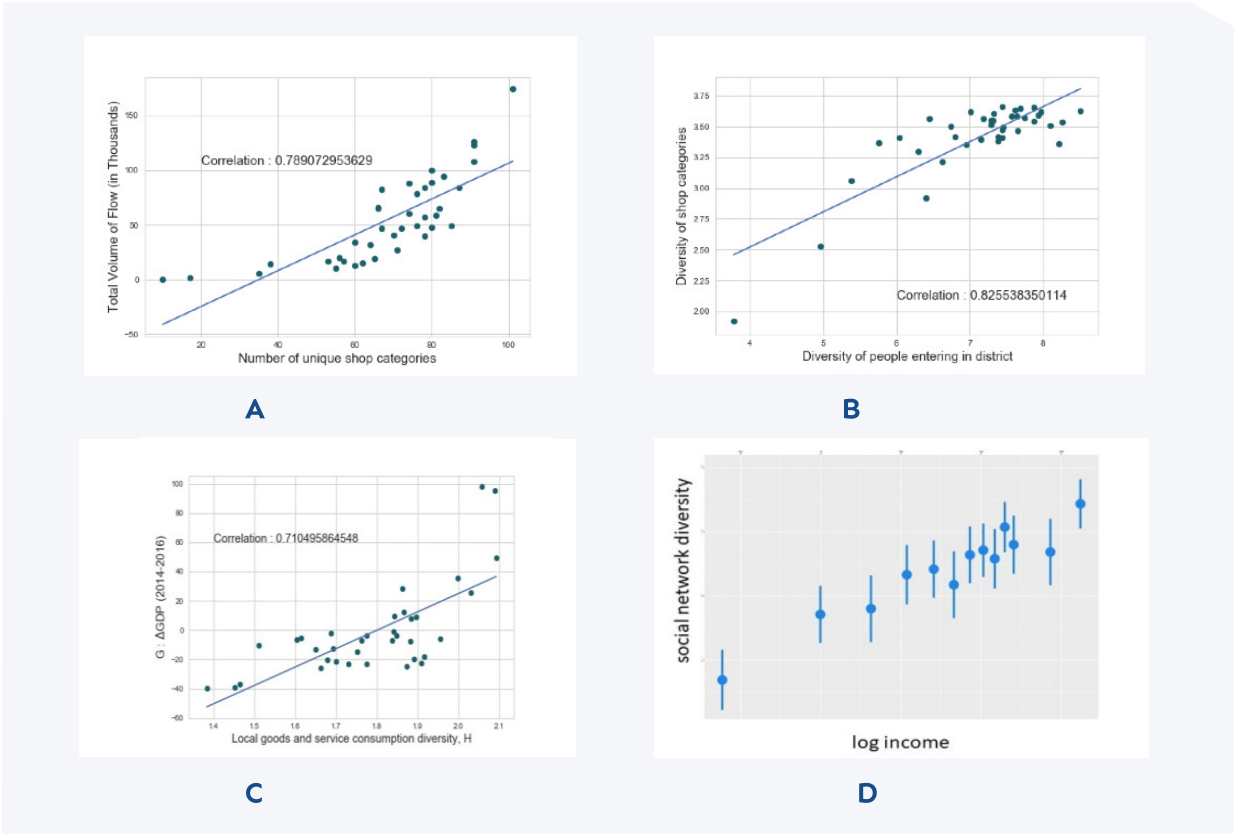

Figure 1. (A) More diverse amenities attract more people, (B) More diverse amenities attract more diverse people (people from more different communities), and (C) greater diversity in amenities (or of people) predicts greater year-on-year GDP growth. (D) shows that people with more diverse social networks have greater personal income, showing that diversity brings wealth both for those within a neighborhood and predicts wealth for those who visit the neighborhood. Data for (A), (B), and (C) are from neighborhoods within a major European metropolitan area, data from neighborhoods within metropolitan areas on other continents is similar, and typically diversity accounts for up to half the variation in growth in GDP even after controlling for population density, centrality in city, and housing price [28]. Data for (D) is sample of 100,000 randomly chosen people in mid-income country [19].

Exposure to New Opportunities Drives Economic Growth

The hypothesis that diverse interaction patterns predicts the flow of new ideas from one neighborhood to another, and that the flow of ideas accounts for a substantial portion of economic growth, has recently been shown for the large-scale interactions found between nations [17, 18]. Moreover, the flow of ideas appears to be a causal factor, and not just a correlational factor, because nations with large volumes of interaction have convergence in skills, technology, and productivity over the long run.

Further, the spread of ideas is a causal factor in the spread of new types of industry between cities, as shown by our recent study looking at whether investment in high-speed rail infrastructure was a causal factor in promoting the spread of companies with specialized commercial expertise [27]. For example, when a city "X" with few information technology (IT) companies is connected by high speed rail to a city "Y" that already has many IT firms, the rail connection strongly promotes creation of more IT firms in city "X." Applying this logic across many types of companies, this study shows that the spread of ideas because of these new rail connections caused an increase of company creation within specialty or category, and that this causal effect is almost 50% greater for connected cities than the general rate of company creation.

The view that physical mixing between different communities strongly influences the rate of innovation and financial growth is reinforced by a recent study in China. This study looked at factors that were important in success of new businesses by performing a survey of all the startups launched from 3,255 government-sponsored incubators throughout China [26]. This survey show that it was cultural diversity was the biggest factor in successful launch and funding of startups, and that diversity of industrial experience was most important in the subsequent growth and scaling of these startup companies.

Long-term growth: intergenerational mobility

Exposure to new ideas and behaviors also predicts long-term socio-economic success of children growing up within a neighborhood. In 2017 my MIT research group analyzed a uniquely large and complete database describing the life trajectories of at-risk children and used these data to build predictive models for life outcomes ranging from eviction from home to "grit" to school grade-point average. These data were generated by the Fragile Families Study (see https://fragilefamilies.princeton.edu/), which examined the development of 4,242 children, interviewing primary caregivers at birth and again when children are ages one, three, five, nine, and fifteen years, together with in-home assessments of the children. Several collaborative studies provided additional information on parents' medical, employment and incarceration histories, religion, child care and early childhood education. In total, 12,943 measurements were made of each child and their family, including scores on an extremely wide variety of standardized tests [29].

A total of 160 academic teams competed to use these data in order to predict life outcomes of these children. My MIT team produced the most accurate models for half of the life outcome prediction tasks (see http://news.mit.edu/2017/mit-human-dynamics-team-tops-fragile-families-challenge-1004).

Despite the rich data set and state-of-art statistical methods, however, our best predictions for these life outcomes were not very accurate and in fact were only slightly better than those from a simple four-factor benchmark using only demographic characteristics and neighborhood statistics. The uncomfortable conclusion of this huge effort, as reported in the Proceedings of the National Academy of Science [29], is that you cannot predict children's life outcomes from any of the standard tests or interview methods applied to either the children or their families.

However, you can use neighborhood statistics to predict the probability of intergenerational financial mobility. In order to examine the "American dream" of intergenerational mobility, a group of economists, led by Raj Chetty, obtained access to 30 years of longitudinal data from the U.S. Internal Revenue Service (see http://www.equality-of-opportunity.org/). From these data they could compute the rate of intergenerational financial mobility across all U.S. Census Blocks.

Analysis of the IRS data found that 71% of the variation in financial life outcome could be predicted by characteristics of the surrounding neighborhood, specifically, the roughly four block area surrounding the child's home. Moreover, approximately one-quarter of this neighborhood effect is "locked in" by the time the child enters kindergarten, and approximately half of the neighborhood effect is in place by the 5th grade. They could also analyze the outcomes of children who moved from one Census Block to another Census Block as part of a randomized lottery, thus establishing that the neighborhood effect is causal.

Why didn't interviews with parents or any of the other classic social science metrics provide similar predictive power? Perhaps it is because the most predictive variables are ones that people generally do not have quantitative knowledge about (e.g., income distribution of people in adjoining city blocks), or are not even aware of (e.g., proportion of census forms returned, a proxy for social capital). Nor do people suspect the predictive power of these variables. Indeed, the relationships were unknown until this large-scale longitudinal computational social science analysis became available.

Conclusion

What these studies suggest is that the factors that we usually think about -- investment, education, infrastructure, institutions -- may not be the direct cause of prosperity. Instead they may make a difference primarily because they help or hinder the search for new opportunities. The fundamental driver of progress in society may be the search for new opportunities, and is aided by people's skills or capital investment.

This is a fundamental shift in how we think about international development. It suggests that promoting greater access to local opportunities and facilitating resources to harness those opportunities is the best path to building more vibrant, economically successful societies. It suggests that we should focusing on transportation networks to make neighborhoods accessible to more diverse populations [23], invest in diverse stores and amenities in order to attract diverse flows of people [25], and promote the skills and local resources required for local residents to harness local opportunities.

Importantly, we can use local data to evaluate how to best allocate investments to maximize the expected impact on the overall prosperity and health of the neighborhood. Communities need not rely on annualized values of traditional economic indicators for planning purposes but can instead be able to make reliable estimates of what sort of efforts and investments will best contribute to achieving their vision of a prosperous neighborhood and better quality of life [2].

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19

Our Digital Future: From the Internet to the Interledger

ALEX PENTLAND, MIT PROFESSOR

During drafting of the Sustainable Development Goals, I was part of the UN Secretary General's "data revolution" team. It was clear that digital systems were proving to be a fundamental revolution in human development, and so it was important that the power of data and data analytics (including AI) be incorporated into the SDGs [1]. In the subsequent years this revolution has not stopped or even slowed down. The world is becoming ever more digital.

Today this revolution is no longer proceeding application by application and nation by nation. Instead, we are seeing a convergence from separate digital systems for each application and each nation to unified, all-purpose digital ledgers that handle finance, commerce, capital, and tax transactions across the globe. These new ledgers are also a natural home for and extension of Central Bank Digital Currencies (CBDC) and are being promoted by trade countries such as Singapore, Switzerland, and China as a safer and cheaper way to conduct business [2, 3, 4].

While the combination of many different types of transaction on government-sponsored platforms allows greater security and real-time auditing for fraud detection and instabilities, it also raises questions around governance and control. Consequently, there is an urgent need to achieve international consensus on standards and principles of governance, and this will be a critical issue for the UN and other multilateral organizations to address; we need a "digital Bretton Woods" accord to establish the rules of international digital interaction. My hope is that the 2030 UN development goals will incorporate universal deployment of such rules, and that by 2045 the digital world will have a safe, inclusive, accountable and balanced ecology of data and AI for everything from trade and financial to medical services and government.

Evolution of Internet from a Communication to a Transaction Medium

Digital technologies are making it cheaper, easier, and safer to do business with anyone anywhere anytime. The current tidal wave of new digital technologies and social disruptions are symptoms of a much bigger change: the very Internet itself is being transformed, evolving from a loosely structured communications medium to a trusted execution medium. Instead of the internet, allowing seamless, inexpensive communication of data everywhere, we are seeing the emergence of the interledger which allows seamless inexpensive transactions of all sorts, everywhere and with everyone.

To accelerate this trend trading nations are introducing a new "transaction layer" on top of the existing internet has the potential to finally allow both companies and citizens to safely and securely do business with each other - to let each party know who they are dealing with, confirm the interaction is not fraudulent, and to have the outcomes easily enforceable.

The impact of transition from separate and competing "rails" for different types of transactions to a uniform, unified digital platform is difficult to overstate. It offers the possibility of AI-driven continuous audit of a type much deeper and more complete than current audits, of vastly increased fraud detection abilities, and of course much lower cost and greater safety. It is conceivable that this new technology will eventually be seen as important as the invention of double-entry accounting.

With the insight that the internet is evolving to the interledger, we can put the emergence of technologies like blockchain and AI in context. They are a consequence of the limitations of the internet and a logical extension of the technology evolution we have been witnessing for the past 50 years, certainly since the first personal computers were invented and the early days of the ARPANET. The people who built the ARPANET designed it as a way to ensure reliable military communication in case of a nuclear attack. The system was later extended to keep municipalities and universities connected as well as protect important information. But it failed to provide adequate security and auditability, and so has never developed the trusted systems we need for commerce and government.

AI and blockchain are part of a set of evolving global software platforms. legal protocols, and economic structures that are better suited for a connected world. A key development that is driving this evolution is the deployment of "trust chain" systems by trading nations such as China, Singapore, and Switzerland (which we helped engineer). These new systems combine open alliance legal agreements ("trust agreements"), distributed ledger technology ("blockchains"), and end-to-end encryption to allow businesses to monitor transactions from anywhere on the planet and be confident that they are secure, that data was used only as we expected, and the transactions are irrefutable.

The Interledger

National "trust chains" (a contraction of "trust agreements" and "blockchains") are new all-inclusive distributed ledger platforms for smart cities, commerce, government, and finance that are being deployed by governments and national champions within countries such as China, US, Singapore, Switzerland, and others. Through interoperability agreements, they form the emerging interledger. In addition to considerations of security and efficiency, deployment of trust chain platforms is being driven by the rush to issue national digital currencies, which use these same technologies to facilitate payments and tax collection.

An example of these new government-backed interledger platforms is the Ubin project sponsored by Singapore's Monetary Authority and Temasek Sovereign Wealth Fund. The Chinese systems are more developed but less well documented, while the Swiss Trust Chain is at an earlier stage of development.

The Singapore assessment of the Ubin platform is that it demonstrated successful development of a domestic multi-currency payments network and showed that the model can be implemented as an international settlement model, which could bring about cheaper, faster and safer cross-border payments

In order to determine the commercial viability and value of this blockchain-based payments network, they brought together a broad ecosystem of financial players and non-financial services companies. Their conclusion was that the platform demonstrated the applicability of blockchain technology beyond capital markets and trade finance. .

The project is also explored the additional functionalities that can be provided by deploying "smart contracts" on the Ubin network. Smart contracts enable the codification of business rules or logic as a set of programming codes that will execute fairly and faithfully without the need for a trusted third party.

The flexibility provided by smart contracts enables rapid prototyping, testing and the deployment of additional functionalities such as Payment Commitments, Request to-Pay and Pull Payments. The Ubin project team piloted more than a dozen use cases beyond payments, broadly categorized into four areas: capital markets, trade and supply chain finance, insurance, and general transaction contracts beyond financial services.

These new digital platforms offer greatly enhanced ability to address the world's challenges, but they create their own dangers. Transition to more digital infrastructure risks unhealthy concentration of power, and threats to community and national values and norms. The deployment of new data and transaction/AI platforms risks creating a "cold war" between technology blocks, leaving less developed nations at the mercy of a few powerful governments and generally degrading the ability of the world to deal with global challenges.

Driving Forces

Perhaps the main force driving the deployment of interledger technology is the need to repair the world's tattered finances, coupled with the emergence of China as a major international power. Current levels of public debt are at levels not seen since World War II, and simultaneously national economies are in disarray. Many nations are feeling that the time to act is now.

Another game-changing and accelerating development has been that of national digital currencies in central bank digital currencies (CBDC). China has released their digital currency, Singapore has piloted multi-digital CBDC capabilities, and small states such as Bermuda have released a CBDC for social support and financial inclusion purposes (our MIT group helped with the design). A community of over 40 central banks, international organizations, academic researchers and financial institutions have begun to create frameworks to help central banks evaluate, design and potentially deploy CBDCs. Their deployment in China, Southeast Asia and soon in the EU provides greater efficiency, effectiveness and inclusion at global scale.

However, which standards, norms, laws, and currencies will govern these new transaction platforms? The deployment of these new digital trade platforms will provide nations with possibilities for re-arranging the dynamics of trade and influencing other nations in ways that are far less visible than implied by official policy or treaty.

This suggests that a new "Bretton Woods" multilateral effort is required, with the goal of establishing interfaces, methods, and exchange standards for digital transaction platforms such as those developed by China, Singapore, and Switzerland. Unlike the World War II Bretton Woods effort, such coordination must not only be centered around just banking and finance but must be intimately dependent on digital technical standards for trade and the unified risk science needed to measure and forecast interactions between finance, sustainability, and social factors

The Challenges

The digitization of everything means that society faces an unprecedented set of challenges and opportunities. These challenges are perhaps most apparent in these new transaction platforms because they bring together all types of transactions, touch every aspect of society, and affect every organization and citizen in a direct, fine-grained manner. The issues digitalization presents are complex, emergent and demand new approaches which deliver impact at both the global and local level. Along with the challenges of complexity and uncertainty of digitalization, is the speed at which change occurs. Shared understandings and collective decisions need to be made in shorter time periods than ever before.

The complexity involved in digital transformation demands that the various "layers" of the challenge be understood and acted upon in a coordinated and holistic manner. From a technology perspective, data needs to be made more accessible and standardized in a more coherent and interoperable manner, while at the same time protecting private and proprietary data. The data infrastructure needs to be made more ubiquitous, affordable and most importantly more secure to address the times-ten increase in cyberattacks that is anticipated to accompany the roll-out of 5G and the Internet of Things. Technologies such as Federated AI, distributed ledgers, open legal alliances, and business models such as data exchanges are making this possible.

Coordination and cooperation are helping the world address these several interlinked digitalization challenges. From a data perspective, one of the most hopeful points of progress during the COVID-19 pandemic is the increasing support from fortune 500 enterprises, standards bodies, investors, NGOs and international organizations in the adoption Environmental, Social and Governance (ESG) metrics and financial disclosures.

The Need for International Standards and Governance

There are two main areas where international agreement and transnational initiatives could make important difference in the evolution and emergence of the interledger. These are (1) digital transaction auditing and standards enforcement, and (2) governance. These two topics will be discussed in more detail below.

It must be kept in mind that any framework will inevitably include both international treaty, national and local law, and regulation, as well as technical standards. There are many initiatives currently underway, but they lack overall coordination. It must be recognized that complete uniformity is impossible due to differing norms and local conditions. Instead, discussions should focus on establishing norms of interaction, auditing, accountability, and governance between communities. Payments and some other types of financial transactions are examples of such systems.

The basis of good governance is reliable and comparable data, which means that data metrics must be reliable uniform, frequent and sufficiently fine grain to allow visibility required for security and regulation. Private companies must contribute to and participate in these systems, but this should not be at a burdensome cost or endanger their competitive position.

Security and Privacy: digital transaction auditing and enforcement

Foundational to the digital transformation of nations will be the need for strengthened multilateral cooperation to ensure the privacy of citizens and the security of both public and private data systems (e.g., government systems but also financial systems, health systems, etc.). A strengthened commitment to multilateral digital trade security is a natural topic for the UN and its members and is increasingly urgent.

As 5G and Internet of Things technology are more widely deployed in the coming years, many nations will face increasingly disruptive cyberattacks. Current estimates are that the frequency of such attacks could be an order of magnitude greater that today, and would threaten basic government, health, food, power, financial systems. Similarly, the impending deployment of national digital currencies may pose an even greater danger. Not only could "hacks" of a national digital currency cause immense real-world damage, but such systems can potentially allow tracking every purchase of every person. Such individual-level financial tracking poses privacy risks that dwarf current concerns.

Coordinated multinational and national systems that allow unified and agile response is required. The need for technologies such as secure, privacy-preserving digital ID, accurate records of cross-border trade, and real-time sharing of health data are becoming urgent. There are of course many relevant initiatives underway, but there is no overarching vision and so gaps and contradictions are everywhere. The technology to build effective systems exists, and industry is willing to lead the way in deployment, and now governments need to enable effective, coordinated detection of attacks, fraud, and rules for proportional response.

Governance for digital platforms

Modernizing and digitizing governance of national, international, and commercial interactions to become more efficient, transparent, and inclusive is a key global priority, and dozens of efforts to already underway. However, current efforts are mostly piecemeal and incremental. This is therefore a natural topic for the UN and its members.

Governance of digital platforms has become unexpectedly urgent with the pilot deployment of nationally backed digital platforms that provide a uniform framework for not only finance but trade and logistics, authentication, fraud detection and analytics (e.g., AI). China, for instance, is moving existing Silk Road investments onto Chinese digital systems that are dramatically more agile and cheaper than Western systems. Singapore has developed a similar digital trade and logistics infrastructure for investments within its Temasek Sovereign Wealth fund, and Switzerland has recently deployed the Swiss Trust Chain. Finally, most major economies have either deployed or are seriously considering deployment of national digital currencies.

These systems are poised to integrate the majority of the world's trade into efficient, unified frameworks that seamlessly interoperate across sovereign and institutional borders. However, their accountability, inclusiveness and governance may not satisfy many nations, perhaps particularly Western nations. It is imperative to develop standards specifications for these new digital governance systems, making this topic a natural one for members of the UN.

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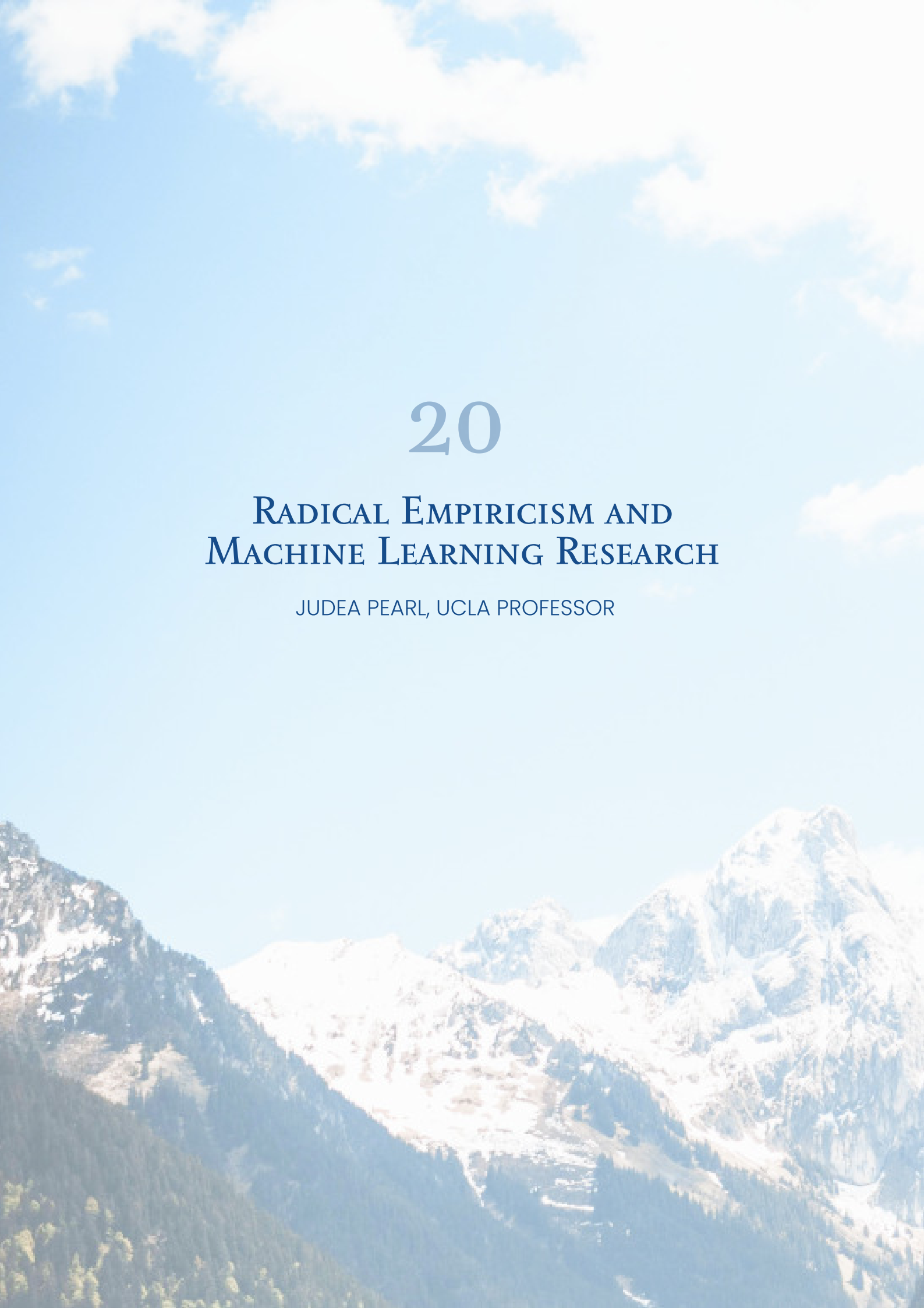

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Radical Empiricism and Machine Learning Research

JUDEA PEARL, UCLA PROFESSOR

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Radical Empiricism and Machine Learning Research

JUDEA PEARL, UCLA PROFESSOR

(This article is forthcoming in Journal of Causal Inference)

Abstract

I contrast the "data fitting" vs. "data interpreting" approaches to data-science along three dimensions: Expediency, Transparency and Explainability. "Data fitting" is driven by the faith that the secret to rational decisions lies in the data itself. In contrast, the data-interpreting school views data, not as a sole source of knowledge but as an auxiliary means for interpreting reality, and "reality" stands for the processes that generate the data." I argue for restoring balance to data science through a task-dependent symbiosis of fitting and interpreting, guided by the Logic of Causation.

Keywords: Causal models, Knowledge representation, Machine learning

Introduction
Simulated Evolution versus Data Science

A speaker at a lecture that I have attended recently summarized the philosophy of machine learning this way: "All knowledge comes from observed data, some from direct sensory experience and some from indirect experience, transmitted to us either culturally or genetically."

The statement was taken as self-evident by the audience, and set the stage for a lecture on how the nature of "knowledge" can be analyzed by examining patterns of conditional probabilities in the data. Naturally, it invoked no notions such as "external world," "theory," "data generating process," "cause and effect," "agency," or "mental constructs" because, ostensibly, these notions, too, should emerge from the data if needed. In other words, whatever concepts humans invoke in interpreting data, be their origin cultural, scientific or genetic, can be traced to, and re-derived from the original sensory experience that has endowed those concepts with survival value.

Viewed from artificial intelligence perspective, this data-centric philosophy offers an attractive, if not seductive agenda for machine learning research: In order to develop human level intelligence, we should merely trace the way our ancestors did it, and simulate both genetic and cultural evolutions on a digital machine, taking as input all the data that we can possibly collect. Taken to extremes, such agenda may inspire fairly futuristic and highly ambitious scenarios: start with a simple neural network, resembling a primitive organism (say an Amoeba), let it interact with the environment, mutate and generate offsprings; given enough time, it will eventually emerge with an Einstein's level of intellect. Indeed, ruling out sacred scriptures and divine revelation, where else could Einstein acquire his knowledge, talents and intellect if not from the stream of raw data that has impinged upon the human race since antiquities, including of course all the sensory inputs received by more primitive organisms preceding humans.

Before asking how realistic this agenda is, let us preempt the discussion with two observations:

(1) Simulated evolution, in some form or another, is indeed the leading paradigm inspiring most machine learning researchers today, especially those engaged in connectionism, deep learning and neural networks technologies which deploy model-free, statistics-based learning strategies. The impressive success of these strategies in applications such as computer vision, voice recognition and self-driving cars has stirred up hopes in the sufficiency and unlimited potentials of these strategies, eroding, at the same time, interest in model-based approaches.[8]

(2) The intellectual roots of the data-centric agenda are deeply grounded in the empiricist branch of Western philosophy, according to which sense-experience is the ultimate source of all our concepts and knowledge, with little or no role given to "innate ideas" and "reason" as sources of knowledge (Markie, 2015). Empiricist ideas can be traced to the ancient writings of Aristotle, but have been given prominence by the British empiricists Francis Bacon, John Locke, George Berkeley and David Hume and, more recently, by philosophers such as Charles Sanders Pierce, and William James. Modern connectionism has in fact been viewed as a Triumph of Radical Empiricism over its rationalistic rivals (Buckner, 2018; Lipton, 2015). Indeed, the ability to emulate knowledge acquisition processes on digital machines offer enormously flexible testing grounds in which philosophical theories about the balance between empiricism and innateness can be submitted to experimental evaluation on digital machines.

8 It will not be an exaggeration to state that societal investment in data fitting technologies, research, education and training have been several thousands times higher than those invested in the model-based science

The merits of testing philosophical theories notwithstanding, I have three major reservations about the wisdom of pursuing a radical empiricist agenda for machine learning research. I will present three arguments why empiricism should be balanced with the principles of model-based science (Pearl, 2019), in which learning is guided by two sources of information: (a) data and (b) man-made models of how data are generated. I label the three arguments: **(1) Expediency**, **(2) Transparency** and **(3) Explainability** and will discuss them in turns below:

1. Expediency

Evolution is too slow a process (Turing, 1950), since most mutations are useless if not harmful, and waiting for natural selection to distinguish and filter the useful from the useless is often un-affordable. The bulk of machine learning tasks requires speedy interpretation of, and quick reaction to new and sparse data, too sparse to allow filtering by random mutations. The outbreak of the COVID-19 pandemic is a perfect example of a situation where sparse data, arriving from unreliable and heterogeneous sources required quick interpretation and quick action, based primarily on prior models of epidemic transmission and data production (Pearl, 2020a). In general, machine learning technology is expected to harness a huge amount of scientific knowledge already available, combine it with whatever data can be gathered, and solve crucial societal problems in areas such as health, education, ecology and economics.

Even more importantly, scientific knowledge can speed up evolution by actively guiding the selection or filtering of data and data sources. Choosing what data to consider or what experiments to run requires hypothetical theories of what outcomes are expected from each option, and how likely they are to improve future performance. Such expectations are provided, for example, by causal models that predict both the outcomes of hypothetical manipulations as well the consequences of counterfactual undoing of past events (Pearl,2019).

2. Transparency

World knowledge, even if evolved spontaneously from raw data, must eventually be compiled and represented in some machine form to be of any use. The purpose of compiled knowledge is to amortize the discovery process over many inference tasks without repeating the former. The compiled representation should then facilitate an efficient production of answers to select set of decision problems, including questions on ways of gathering additional data. Some representations allow for such inferences and others do not. The Ladder of Causation (Pearl and Mackenzie, 2018; Pearl, 2019) defines formally the type of knowledge content needed to answer questions about hypothetical interventions and/or explanations and counterfactuals.

Knowledge compilation involves both abstraction and re-formatting. The former allows for information loss (as in the case of graphical models summarizing numerical equations), while the latter retains the information content and merely transform some of the information from implicit to explicit representations. A classic example would be the spectral representation of a signal wave form; the former is information-equivalent to the latter, but explicitly represent certain aspects of the latter.

These considerations demand that we study the mathematical properties of compiled representations, their inherent limitations, the kind of inferences they support, and how effective they are in producing the answers they are expected to produce. In more concrete terms, machine learning researchers should engage in what is currently called “causal modelling” and use the tools and principles of causal science to guide data exploration and data interpretation processes.

3. Explainability

Regardless of how causal knowledge is accumulated, discovered or stored, the inferences enabled by that knowledge are destined to be delivered to, and benefit a human user. Today, these usages include policy evaluation, personal decisions, generating explanations, assigning credit and blame or making general sense of the world around us. All inferences must therefore be cast in a language that matches the way people organize their world knowledge, namely, the language of cause and effect. It is imperative therefore that machine learning researchers regardless of the methods they deploy for data fitting, be versed in this user-friendly language, its grammar, its universal laws and the way humans interpret or misinterpret the functions that machine learning algorithms discover.

[9]

Conclusions

It is a mistake to equate the content of human knowledge with its sense-data origin. The format in which knowledge is stored in the mind (or on a computer) and, in particular, the balance between its implicit vs. explicit components are as important for its characterization as its content or origin.

While radical empiricism may be a valid model of the evolutionary process, it is a bad strategy for machine learning research. It gives a license to the data-centric thinking, currently dominating both statistics and machine learning cultures, according to which the secret to rational decisions lies in the data alone.

A hybrid strategy balancing "data-fitting" with "data-interpretation" better captures the stages of knowledge compilation that the evolutionary processes entails.

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9 Going back to evolutionary perspectives, it is quite possible that human conception of the world is an accidental consequence of catastrophic events, say cosmic radiation, meteorites storms or volcanic eruptions, and will not be discovered by any machine simply because the sense data for such events is not to be found.

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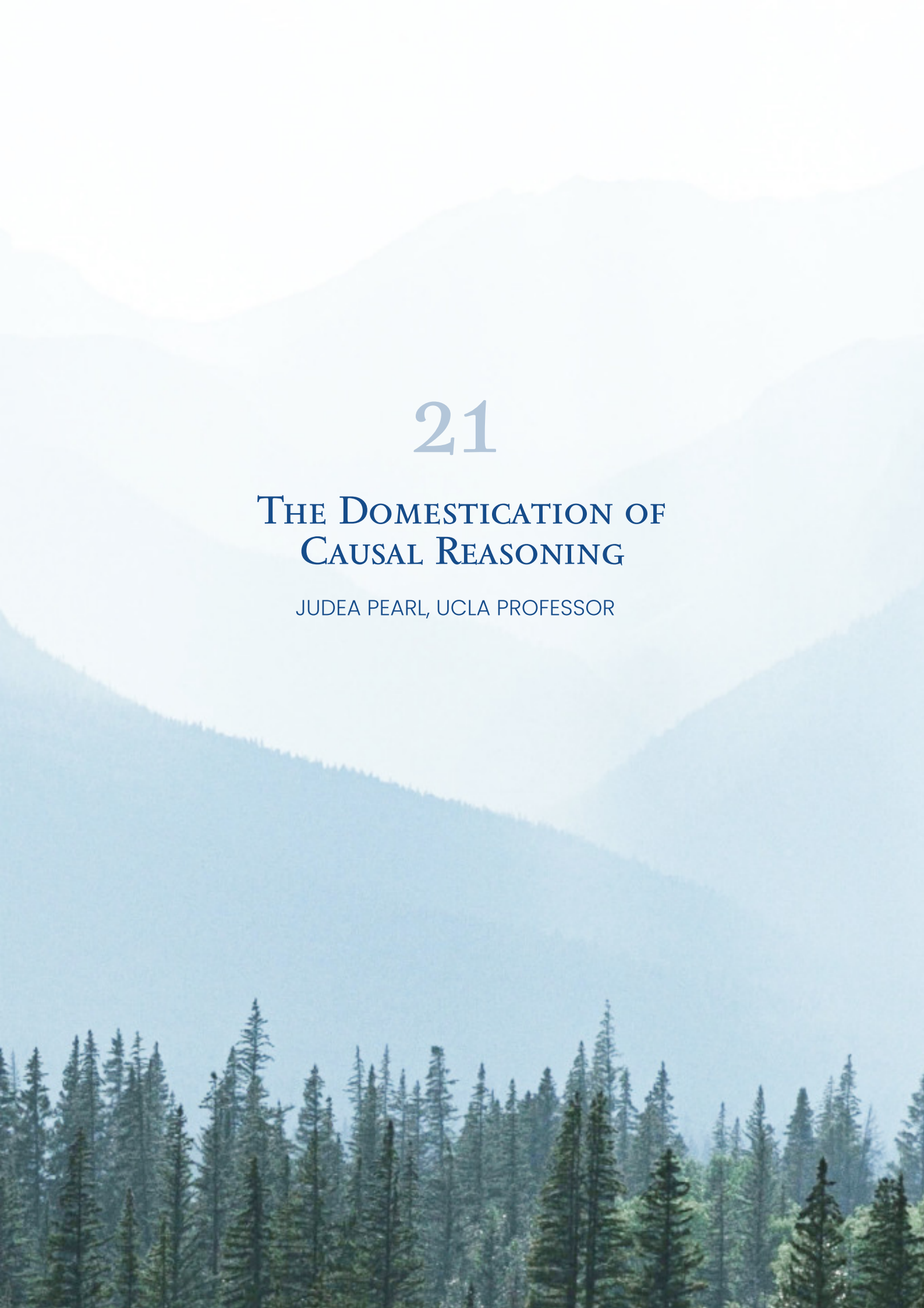
Addendum

An email exchange with Yoshua Bengio concerning the arguments above can be found on (Pearl, 2020b).

The discussion focused on the role of causal discovery in human understanding of their environment. Whether causal reasoning should be viewed as a variant of traditional machine learning techniques (Sch ̈olkopf et al., 2021), perhaps as a special kind of "inductive bias," or the other way around, that machine learning should be viewed as a supplement to causal inference tasks. I am, of course, of the latter opinion, advocating that even in causal discovery tasks, what we know today about causal inference should be used as guidance to discovery. I summarized it succinctly saying: "Finding a needle in a haystack is difficult, and it is probably impossible if you haven't seen a needle before."

Most ML researchers today have not seen a needle (i.e., a causal model drawing inferences on interventions and counterfactuals); an educational hindrance that needs to be corrected in order to hasten the discovery of the learning principles we aspire to uncover.



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The Domestication of Causal Reasoning

JUDEA PEARL, UCLA PROFESSOR

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The Domestication of Causal Reasoning

JUDEA PEARL, UCLA PROFESSOR

I. Introduction

On Wednesday December 23 I had the honor of participating in "AI Debate 2", a symposium organized by Montreal AI, which brought together an impressive group of scholars to discuss the future of AI. I spoke on "The Domestication of Causal Reasoning: Cultural and Methodological Implications," and the reading list I proposed as background material was:

1. "The Seven Tools of Causal Inference with Reflections on Machine Learning," July 2018 https://ucla.in/2HI2yyx
2. "Radical Empiricism and Machine Learning Research," July 26, 2020 https://ucla.in/32YKcWy
3. "Data versus Science: Contesting the Soul of Data-Science," July 7, 2020 https://ucla.in/3iEDRVo

The debate was recorded here https://montrealartificialintelligence.com/aidebate2/ and my talk can be accessed here: https://youtu.be/gJW3nOQ4SEA. Below is an edited script of my talk.

II. What I would have said had I been given six (6), instead of three (3) minutes

This is the first time I am using the word "domestication" to describe what happened in causality-land in the past 3 decades. I've used other terms before: "democratization," "mathematization," or "algorithmization," but Domestication sounds less provocative when I come to talk about the causal revolution.

What makes it a "revolution" is seeing dozens of practical and conceptional problems that only a few decades ago where thought to be metaphysical or unsolvable give way to simple mathematical solutions.

"DEEP UNDERSTANDING" is another term used here for the first time. It so happened that, while laboring to squeeze out results from causal inference engines, I came to realize that we are sitting on a gold mine, and what we are dealing with is none other but:

A computational model of a mental state that deserves the title "Deep Understanding"

"Deep Understanding" is not the nebulous concept that you probably think it is, but something that is defined formally as any system capable of covering all 3 levels of the causal hierarchy: What is – What if – Only if. More specifically: What if I see (prediction) – What if I do (intervention) – and what if acted differently (retrospection, in light of the outcomes observed).

This may sound like cheating – I take the capabilities of one system (i.e., a causal model) and I posit them as a general criterion for defining a general concept such as: "Deep Understanding."

It isn't cheating. Given that causal reasoning is so deeply woven into our day to day language, our thinking, our sense of justice, our humor and of course our scientific understanding, I think that it won't be too presumptuous of me to propose that we take Causal Modeling as a testing ground of ideas on other modes of reasoning associated with "understanding."

Specifically, causal models should provide an arena for various theories explanations, fairness, adaptation, imagination, humor, consciousness, free will, attention, and curiosity.

I also dare speculate that learning from the way causal reasoning was domesticated, would benefit researchers in other area of AI, including vision and NLP, and enable them to examine whether similar paths could be pursued to overcome obstacles that data-centric paradigms have imposed.

I would like now to say a few words on the Anti-Cultural implications of the Causal revolution. Here I refer you to my blog post, https://ucla.in/32YKcWy

I would like now to say a few words on the Anti-Cultural implications of the Causal revolution. Here I refer you to my blog post, where I argue that radical empiricism is a stifling culture. It lures researchers into a data-centric paradigm, according to which Data is the source of all knowledge rather than a window through which we learn about the world around us.

What I advocate is a hybrid system that supplements data with domain knowledge, commonsense constraints, culturally transmitted concepts, and most importantly, our innate causal templates that enable toddlers to quickly acquire an understanding of their toy-world environment.

It is hard to find a needle in a haystack, it is much harder if you haven't seen a needle before. The module we are using for causal inference gives us a picture of what the needle looks like and what you can do once you find one.

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Living Culture and Artificial Intelligence

RAMU DAMODARAN
CHIEF OF UNITED NATIONS ACADEMIC IMPACT

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Living Culture and Artificial Intelligence

RAMU DAMODARAN
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I must have been in the eighth grade when our high school teacher, Father Pat Rebeiro, introduced us to the distinction between culture and civilization which the French author Amaury de Riencourt had put forward some years earlier, in which he expanded upon the idea put forward by Oswald Spengler earlier in The Decline of the West that, as Ben Espen has paraphrased it, "civilization is the "late" phase in a society's life. It follows the period of "Culture," when society creates its characteristic science, religion, art, and politics. "Espen goes on to suggest that "culture is pioneering, aesthetic, and fertile. Civilization is sterile, extensive, practical, and ethical."

Riencourt wrote in the 1950s, shortly before Sputnik bridged our inner and outer worlds, and before the extraordinary demonstrations of a world resurgent, a world "pioneering, aesthetic and fertile" demonstrated the futility of demarcating cultures and civilizations by national or continental boundaries. Migration, the ease of collaborative research beyond the physical proximity of the researchers, and the unexpected fertility of foreign lands to greatnesses once thought indigenous to a specific national home, have allowed us a world whose civilizational moulding and moorings constantly yield a chorus, a confluence, and, indeed, a co-mingling, of cultures. Where, in this excitement and effervescence, does artificial intelligence (AI) fit in?

A good point to begin that reflection is the assertion by Governor Michael Dukakis of the character of AI, the absence of its applicability to the "too many judgments you have to make in this world that involve values, ethics and morality." As bedrock principles, these would appear civilizational in character, the enduring geology which cultures infused but never supplanted, cultures which by the very being of their energy and spontaneity could well ignore, go beyond, reinvent —-or, yes, conform to —- values, ethics and morality. Speaking in Ho Chi Minh city (HCMC) two years ago, Ousmane Dione, World Bank Country Director for Vietnam, noted that while " AI mimics how the brain works ", there were three key factors to measure the possibilities of its successful use in that historic city ; "setting clear and realistic expectations for where and how AI can deliver for HCMC, ensuring that there is an enabling environment for AI to succeed in practice, especially when it comes to accessing and integrating the data needed to solve the city's challenges and, finally, making sure that we understand and manage any key risks associated with AI."

Within the cultural space, the most self-evident area of risk posed by AI is, as Baptiste Caramiaux has written, in the challenge by "AI-generated content to authorship, ownership and copyright infringement. New exclusive rights on datasets must be designed in order to better incentivise innovation and research." That said, as he continues, "AI challenges the creative value-chain in two ways: shifting services performed by humans to algorithms and empowering the individual creator." It is that empowerment that will, in my view, remain one of the two greatest possibilities for AI to enhance the individual, as much as global, cultural experience.

In 2016, Microsoft, with academic and corporate partners, launched the “Next Rembrandt” project which “imprinted the AI “with 346 of Rembrandt’s known works in the hopes that it could create a unique 3D printed image in his style. An algorithm measured the distances between the facial features in Rembrandt's paintings and calculated them based on percentages. Next, the features were transformed, rotated, and scaled, then accurately placed within the frame of the face. Finally, we rendered the light based on gathered data in order to cast authentic shadows on each feature." The cumulative result was a product that could well have been the final work by the storied artist of the Renaissance.

Using that illustration as metaphor, one can foresee the power and possibilities in AI to create cultural experiences beyond ready human capacity, through its innate strengths of recognition, selection and assimilation, experiences that can extend to the creative and performing arts, the auditory aspiration of recreated music (think of Beethoven’s nine symphonies being fashioned into his unwritten tenth; we have a precursor already in the 2019 venture in Linz, where a performance of Mahler’s unfinished tenth symphony was followed by a six minute software composition in his style), or a syncretic architectural fantasy that echoes Egyptian pyramids as evocatively as it does the Angkor Wat in Cambodia. Here AI is an enhancer of, and not a threat to, human enjoyment.

Corollary to this is the expansion the judicious use of AI will afford the culturally creative individual; even if its mimicking of the human brain will not allow it to become the brain itself, and happily not, it can through that process of inference and imitation address many of the more mundane aspects of the creativity while also suggesting options and possibilities for the original human brain to explore.

The cofounding by Governor Michael Dukakis and Nguyen Anh Tuan of the Boston Global Forum (BGF) of the “Artificial Intelligence World Society” (AIWS) launched “a project that aims to bring scientists, academics, government officials and industry leaders together to keep AI a benign force serving humanity’s best interests.” The idea of an AIWS would strike a particular chord for the United Nations which had looked at the idea of a “world society” in its very first years with UNESCO’s encouragement of “teaching about the United Nations and its specialized agencies since, together, these form the greatest contemporary effort, on an international, governmental scale, to move towards a world society. A booklet including some suggestions for teaching programs on the United Nations in the schools of Member States…was considered…at the UNESCO seminar at Adelphi College, New York.”

“World society” is an elegant phrase that has not acquired the reiteration it deserves; I was reminded of it when reading an article by Robert A. Scott, President Emeritus of Adelphi, where he writes “One of the most important goals of education is to learn how to reflect, how to learn from our experiences. An early experience that has stayed with me was finding small wooden signs along the paths of the camp I attended when nine years old. The signs were about three inches by seven inches and had the word "Others" carved into the wood. They were intended to inspire those walking the paths to be considerate of others, welcome others, and listen to others, no matter what their station in life. Others. Respect others. Listen to others, no matter what their station. Reflect on what they say. It may help solve a problem you never thought about.”

Those last four words point to the second possibility I sense in the power of AI to enhance the individual, to allow her the possibility to summon experiences untested and untasted from the moorings of the felt and familiar, to find in the 'others' that Bob Scott mentioned, ourselves. Much as the often irritating pop up advertisements that promise "if you like that you will love this", AI can, with the voluntary consent of the online seeker, bring to the proximity of her desk or lap beauties unexplored with a confidence in their appeal that only objective algorithmical analysis can assure. And making distant cultures proximate, seeing their evanescent echoes in one's own, is the essence of a world society.

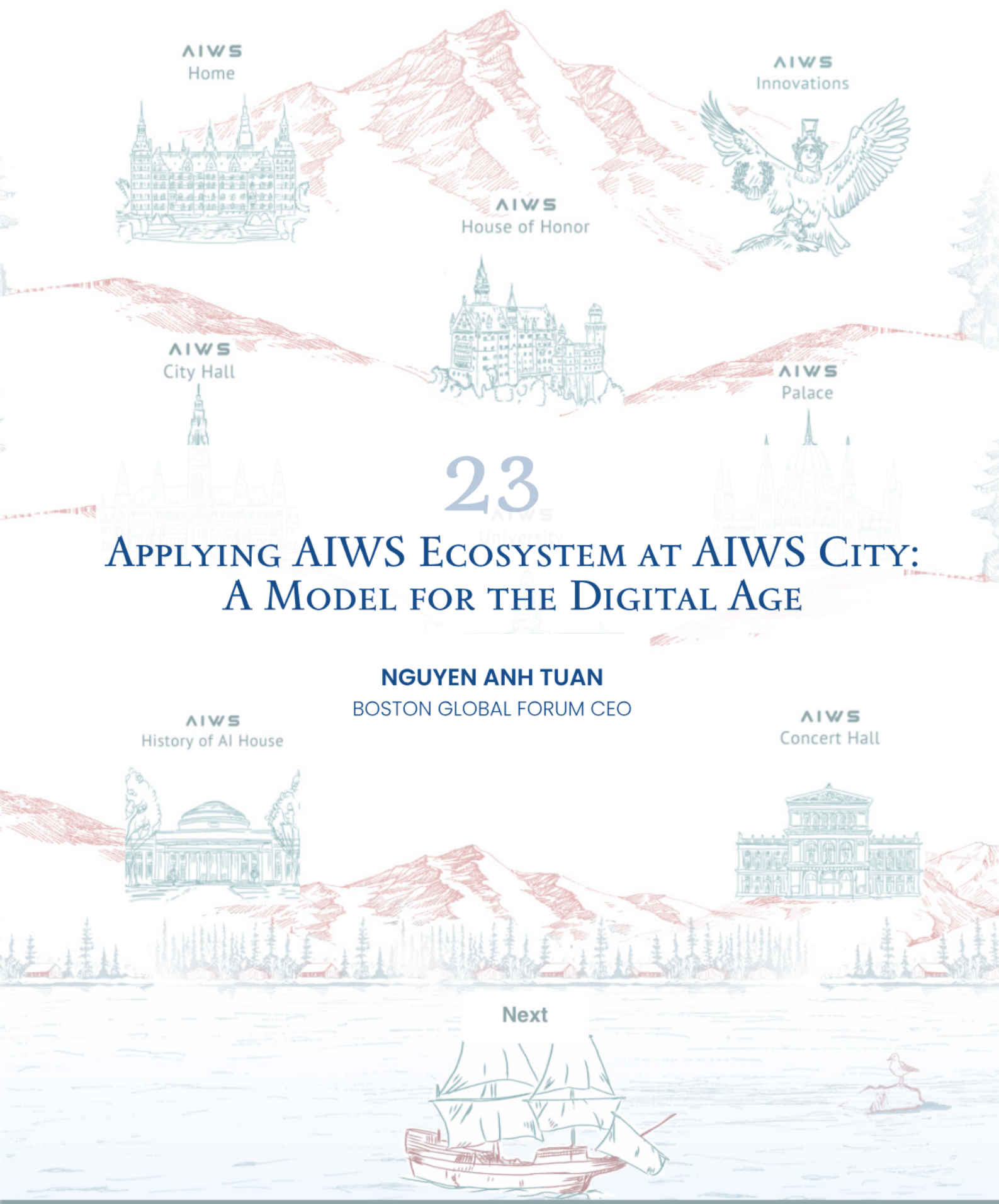
The truth that such a society ought to be both a physical and a spiritual concept is reflected in what BGF describes as a "sophisticated pioneer model: a combination of the virtual, digital AIWS City and real cities", the model being Phan Thiet in Viet Nam, developed by the Nova Group in that country whose Chairman, Bui Thanh Nhon, described it as " the place for the World Leadership Alliance-Club de Madrid and the Michael Dukakis Institute to hold important annual events marked by the theme of 'Building a New Economy' for the world in the digital and artificial intelligence era, a venue to announce new achievements in the history of artificial intelligence and the digital economy." It is critical to acknowledge the cultural dimension to the "new economy" through the creative sector, so much of its component cultural; as UNESCO notes, it generates "annual revenues of US$2,250 billion and global exports of over US$250 billion. According to recent forecasts, these sectors will represent around 10% of global GDP in the years to come."

Speaking at the Riga Conference 2019 in Latvia, Tuan referred to the “need for a new social contract, one that is suited to a world of artificial intelligence, big data, and high-speed computation and that will protect the rights and interests of citizens individually and society generally. A fundamental assumption of the social contract is that the five centres of power - government, citizens, business firms, civil society organizations, and AI assistants - are interconnected and each needs to check and balance the power of the others. Citizens should have access to education pertaining to the use and impact of AI,” a thought reflective of what Governor Dukakis said at a BGF March event, of the possibilities of “new ideas, initiatives, and solutions by thinkers and creators in an effort to build a civilized, prosperous, peaceful, and happy world,” ‘creators’ an apt term to define those who say their skills and talent enhanced, and not threatened by, AI.

Forty years ago, Carl Sagan wrote: “What an astonishing thing a book is. It's a flat object made from a tree with flexible parts on which are imprinted lots of funny dark squiggles. But one glance at it and you're inside the mind of another person, maybe somebody dead for thousands of years. Across the millennia, an author is speaking clearly and silently inside your head, directly to you. Writing is perhaps the greatest of human inventions, binding together people who never knew each other, citizens of distant epochs. Books break the shackles of time. A book is proof that humans are capable of working magic."

AI has taken that proof a step further, affirming in the process the linear connection between human capability and magic, affirming that magic would not find itself possible of realization without the humans that shaped it, extending inexorably and wondrously the pledge in the United Nations charter to the “dignity and worth of the human person” whose measure only the human person herself, through innovation, experiment and daring, can expand.

New York, May 26, 2021



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Applying AIWS Ecosystem at AIWS City: A Model for the Digital Age

NGUYEN ANH TUAN

BOSTON GLOBAL FORUM CEO

WORLD LEADER IN AI WORLD SOCIETY
BOSTON GLOBAL FORUM IDEAS THAT MATTER.
MICHAEL DUKAKIS INSTITUTE FOR LEADERSHIP AND INNOVATION
AIWS AI WORLD SOCIETY
UN100
Global Cybersecurity Day
WORLD LEADER FOR PEACE AND SECURITY

23

Applying AIWS Ecosystem at AIWS City: A Model for the Digital Age

NGUYEN ANH TUAN
BOSTON GLOBAL FORUM CEO

The Digital and AI Age is remaking the world. The issue is whether that remaking will serve the common good. Judging from history, it is a mistake to assume that such an outcome will occur without empowering ordinary citizens. The Artificial Intelligence World Society (AIWS) is such an effort.

In this article, I discuss the need to empower citizens and the steps required to achieve that goal. The article concludes with a discussion of AIWS City, which is a digital city being created as a model for how ordinary people can be empowered in the Digital and AI Age.

The Goal of AIWS

AIWS seeks to create an AIWS Ecosystem that empowers citizens to create value for themselves, for others, and for society through the application of artificial intelligence, digital, blockchain, and data science technologies. It is a sharing ecosystem that rewards both the creators and users of these technologies, as well as an ecosystem that encourages everyone to innovate. It breaks down the hierarchies that traditionally have created unequal power relationships, paving the way to a sharing society. It recognizes the value of every citizen, as well as every citizen's creative potential. It seeks to promote citizens' economic wellbeing while also promoting ethical and community values. It aims for nothing less than the creation of a more trusting, prosperous, and compassionate world where people can live more fulfilling lives, materially and ethically.

The foundation of AIWS is the Social Contract for the Artificial Intelligence Age, which was developed by the Boston Global Forum in consultation with leading thinkers and practitioners. The Social Contract has been endorsed by organizations, including The World Leadership Alliance – Club de Madrid, which is the organization of former heads of state and heads of government of democratic countries.

As with earlier social contracts, the Social Contract for the Artificial Intelligence Age is rooted in the rights and interests of individuals, and what governments and other entities must do and are prohibited from doing to safeguard these rights and interests. The AI Social Contract and AIWS Ecosystem envision a world where everyone's contribution is recognized and everyone has a right to education and ready access to information and technology, where no one is above the law, and where integrity, knowledge, creativity, and honesty are seen as key values in shaping policy and society. It envisions a world where governments adhere to basic values and are accountable and transparent.

The AIWS Value System

Remaking the world as a more humane, peaceful, and secure place rests on promoting the values that will foster that world. To that end, AIWS has created the AIWS Value System as a means of guiding and encouraging individuals to contribute to a changing world.

The AIWS Value System focuses on creative or innovative acts that foster a sharing society. Such acts can take many forms but would include:

- Creation or promotion of innovative ideas and organizations that offer meaningful paths for people's political, social, economic, or moral development
- Creation or invention of technological advances that improve the lives of ordinary people
- Innovative approaches to art, culture, sport, or entertainment that improve the quality of life for ordinary people
- Voluntary acts – everything from charitable contributions to the granting of access to data – that enhance the lives of ordinary people
- Acts that promote the values inherent in the Social Contract for the Age of Artificial Intelligence

As these examples indicate, the AIWS Value System centers on action designed to help ordinary people and that contributes to the building of a sharing society.

Promoting the AIWS Value System

The AIWS Value System recognizes acts that often take place in the absence of supportive mechanisms. Yet, the creation of such mechanisms can incentivize and facilitate acts of this kind. To this end, AIWS is:

- Creating the Global Enlightenment Education Program. This program will aim to inform ordinary citizens about the world in which they live, and how they can help improve it. The program will be dedicated to lifelong learning and the fostering of views that will enable ordinary citizens to be more innovative, tolerant, and participatory. The program will place special emphasis on reaching people in more remote areas who are typically left behind by technological change. The program will also emphasize the contribution that everyone, whatever their location or background, can make to the common good.

- Promoting the development of legal systems that protect creativity and innovation and that respect the rights and interests of ordinary people.

- Promoting creation of a cultural, social, economic, and political environment that encourages and rewards creativity and innovation; that respects the rights, interests, and abilities of ordinary people; that encourages popular participation in the creation of a more humane world; that rewards those individuals who make noteworthy creative and innovative contributions to the common good; and that recognizes those who, through ideas and action, make significant contributions to politics and society.

- Promoting the development of technology systems that support creativity and innovation; that broaden participation by ordinary citizens; that contribute to the digital-age education of these citizens; that give ordinary citizens the means to directly create products and services; that foster meaningful work opportunities; that provide ordinary citizens with greater access to essential services, such as health care; and that suppress fraudulent and other harmful acts that injure ordinary citizens.

Test Model: AIWS City

The AIWS Value System is innovative and, as such, untested for its utility. AIWS will test the concept by creating the AIWS City, which will be a virtual digital city dedicated to promoting the values associated AIWS. We envision it as a community of scholars, innovators, leaders, and citizens dedicated to fostering thought, creativity, and ethical behavior.

The digital platform for AIWS City has been created and the first phase of the project will be launched on September 9, 2021. AIWS City has offices in Boston, Massachusetts (USA); Tokyo (Japan), Stockholm (Sweden), Zurich (Switzerland), and NovaWorld Phan Thiet, Ha Noi, and Nha Trang (Vietnam), with plans to expand to other locations at a later time.

AIWS City will include the following components:

> **AIWS Home,** which is the personal space of the "citizens" of AIWS City. Each citizen will have a "digital home" for their work, innovation, and entertainment. The digital home will have secure computing, data storage, and Cloud service, as well as access to data sets, software programs, and tech support.

> **AIWS University,** which is a digital-age university for lifelong learning. The university will focus on courses that help leaders, managers, and students understand and apply digital technology, including Artificial Intelligence, cybersecurity, machine learning, and blockchain. It will also include courses designed to give individuals an understanding of the larger world of which they are a part. A signature feature of the university will be its course offerings in leadership, which emphasize ethical, compassionate, team-centered, and socially responsible leadership in the Digital Age.

AIWS Global Enlightenment Education Program, which was described earlier in this article. Citizens of AIWS City will receive a daily bulletin with information and ideas that can enhance their global understanding and enrich their personal lives.

AIWS Forum, which will feature lectures by the world's leading digital thinkers - scholars, innovators, philanthropists, political leaders, artists, and corporate executives. There will also be seminars and discussion groups designed to bring together communities of interest. This Forum will promote AIWS Ecosystem and AIWS Value System.

AIWS Vint Cerf Museum of the Internet, which is named after Vint Cert, who is "the father of the Internet" and a frequent contributor to the Boston Global Forum and AIWS. The museum will be interactive and trace the history of the Internet, including the contributions of Vint Cerf and other major figures in the Internet's development.

AIWS History of AI House, which will display the history of AI and serve as a venue for deliberation on issues relating to AI.

AIWS Market, which will feature products and services that promote a healthy, ethical, and productive lifestyle. The market will also serve as a small business incubator, assisting these businesses in building their brand and entering the digital market. The market will support the sale of creative and innovative products and services that promote the common good.

AIWS College Preparatory Academy,
which will assist students from developing countries to prepare for and gain admission to high-quality colleges and universities.

AIWS Innovation Hub, which will serve as an incubator to help firms, inventors, innovators, and entrepreneurs turn their ideas into reality. They will be able to discuss their ideas and problems and hear from experts and practitioners on how to advance or solve them. The Innovation Hub will promote pioneering models that foster social responsibility and will reward their developers through the AIWS Rewards Program.

AIWS Window on the World, which will provide AIWS citizens with virtual tours of the world's great museums, concert halls, palaces, public buildings, stadiums, ancient ruins, landmark buildings, and natural wonders. And it will give them opportunities to interact with creative individuals from these venues.

AIWS Rewards Program, which will be an experimental program to test the feasibility of a value marketplace – a mechanism through which societal contributions can be exchanged for goods and services. Based on a cryptocurrency (Crypto-AIWS-Rewards), the program will seek to help reformers, innovators, artists, and others who contribute to human progress but who typically do not receive commensurate material benefits.

AIWS and the Age of Global Enlightenment

AIWS seeks to advance the common good through the opportunities to "remake the world" presented by the digital and AI revolution. An "Age of Global Enlightenment" is achievable if action is guided by six anchors:

- **Enlightened Political and Social Order**
  As expressed in the Social Contract for the AI Age, accountability and responsibility are fundamental to fostering global enlightenment.

- **Enlightened National Law and Global Governance**
  As expressed in the Framework of Global Laws and Accord on AI and Digital, proper governance is fundamental to fostering global enlightenment.

- **Enlightened Economic Innovation**
  Every citizen can become an innovator. Socially responsible economic innovation by firms, communities, and individuals is fundamental to fostering global enlightenment.

- **Enlightened Cultural Norms**
  Tolerance for diversity, mutual support, respect, and recognition of the value of every individual are fundamental to fostering global enlightenment.

- **Enlightened Education Principles**
  As expressed in the AIWS Global Enlightenment Education Program, life-long pursuit of and respect for knowledge are fundamental to fostering global enlightenment.

- **Enlightened Communication and Discourse**
  Open forms of discourse, respect for diverse opinions, and fidelity to accuracy in mass and personal communication are fundamental to fostering global enlightenment.

Each of these anchors applies to all levels of social, economic, and political organization, and each is a necessary condition for achieving an Age of Global Enlightenment.

Remaking the World Requires Reimagining It

The great question of the Digital and AI Age is not technological in nature. Rather it is the question of what type of society we seek to create through the application of digital technology.

The digital and AI revolution and trailblazing ideas will reshape the world. Like previous industrial revolutions, it will have a transformative effect on the way we live and relate to each other. Like the others, it will be disruptive. Some business sectors will wither, while others will thrive. That is true also of people. With the other revolutions, the outcome was determined almost entirely by market forces, which worked primarily to the benefit of the powerful, typically at a significant cost to ordinary people.

AIWS seeks to ensure that the historical pattern does not become a defining feature of the Digital and AI Age. AIWS is a reimagined world, one where the rights and interests of ordinary citizens are paramount and where action is taken to empower them in ways that enlarge their voice and influence and that give them the agency to help shape a new world. AIWS recognizes that this reimagined world will require concerted action by governments, individuals, organizations, and firms. Each must be a source of innovation, and each must adhere to AIWS standards and values. Together, we can remake the world and usher in an Age of Global Enlightenment.

Appendix

Boston Global Forum Conference Words and Images

Security in Cyberspace

SHINZO ABE, PRIME MINISTER OF JAPAN

"Ensuring security in cyberspace – cybersecurity – is the indispensable foundation for advancing our utilization of IT and realizing our Growth Strategy."

"Japan will continue to cooperate closely with the US and other partners in the international community reliably safeguarding our nation's important information and property while playing a leading role in achieving the peace and stability of the international community."

"It is greatly reassuring to me that the members of the Boston Global Forum are promoting cybersecurity-related awareness raising activities and fostering discussions in various countries around the world."

To view Prime Minister Shinzo Abe's full speech, please use the link: https://bostonglobalforum.org/global-cybersecurity/world-leaders-awards/prime-minister-shinzo-abes-award-acceptance-speech-and-message-to-the-global-cybersecurity-day

The First Global Cybersecurity Day December 12, 2015, and World Leader for Peace and Security Award

Key Speakers: Governor Michael Dukakis, Chairman & Co-Founder, Boston Global Forum; Professor Thomas E. Patterson, Co-Founder, Member of Board of Directors, Boston Global Forum, Bradlee Professor of Government and the Press, Harvard Kennedy School; His Excellency, Shinzo Abe, Prime Minister of Japan; Bruce Schneier, Fellow, Berkman Center for Internet and Society, Harvard Law School, Chief Technology Officer, Resilient Systems, Inc.;

- Speech of Prime Minister Shinzo Abe (World Leader for Peace and Security Award Recipient)

- Statement on Global Cyber Security Day by United Nations General Secretary Ban Ki-moon

https://bostonglobalforum.org/highlights/video-global-cybersecurity-day-in-harvard-university-faculty-club-december-12/

China, Free Markets, and Human Rights

Iain Duncan Smith Member of Parliament, UK

Ideas of Sir Iain Duncan Smith, UK MP At the Democratic Alliance on Digital Governance Conference July 1, 2020

China have long stopped pretending to use diplomacy as a tool. President Xi is now bound on a course of greater confrontation and aggression on the basis that the Chinese economy will continue to grow. This of course lies in our hands. It is up to the free world to decide whether we are prepared to allow the Chinese economy to grow in the same way it has been doing over the past decade.

We cannot go on allowing a country to access all the benefits of the free world - particularly within the free market - but to ignore the rules that exist around the applications of those markets and to disregard human rights, which underpins the operation of those markets. China believes that democracy can be swept aside by their strategic vision. However, without democracy underpinning the markets we will end up as we did in the 1930s with sanctions, barriers, trade freezing and economic depressions.

History has a habit of repeating itself. We are now, I believe, at a similar place we were in the 1930s with two options: we can choose to go on appeasing an autocratic nation that oppresses its own people or we can choose to stand up to a country that has blatant disregard for all democratic and freedom loving nations. We now face that choice.

To view Sir Iain Duncan Smith's full speech: https://bostonglobalforum.org/news-and-events/news/sir-iain-duncan-smiths-speech-at-the-democratic-alliance-on-digital-governance-conference/

Democratic Alliance on Digital Governance Conference, July 1, 2020

Key Speakers: Liam Byrne, UK Member of Parliament, the Chair of the Parliamentary Network on the World Bank & IMF; Governor Michael Dukakis, Co-founder and Chair of the Boston Global Forum (BGF); Ichiro Fujisaki, former Japanese Ambassador to US; Senator Kimberley Kitching, Parliament of Australia, Co-chair of Inter-Parliamentary Alliance on China (IPAC); Miriam Lexmann, Member of European Parliament, Co-chair of IPAC; Jamil Mahuad, Former President of Ecuador; Beatriz Merino, Former Prime Minister of Peru; Yasuhide Nakayama, Member of the House of Representatives of Japan, the State Minister for Foreign Affairs; Andreas Norlén, Speaker of the Swedish Parliament; Nam Pham, Assistant Secretary of Business Development and International Trade of Government of Massachusetts; Sir Iain Duncan Smith, UK Member of Parliament, Co-chair of (IPAC); Professor Nazli Choucri (MIT); Prof. Koichi Hamada (Yale); Prof. Joseph Nye (Harvard Kennedy School); Prof. Thomas Patterson (Harvard Kennedy School); Prof. Alex Pentland (MIT); Prof. David Silbersweig (Harvard); Nguyen Anh Tuan, CEO of the Boston Global Forum (BGF), Prof. Dick Vietor (Harvard Business School).

- Speech of Sir Iain Duncan Smith, Member of UK Parliament
- Speech of Professor Joseph Nye of Harvard Kennedy School

https://bostonglobalforum.org/news-and-events/events/democratic-alliance-on-digital-governance-conference-protecting-and-strengthening-democracy-in-the-aftermath-of-covid-19/

Countering the Cybersecurity Threat

TARO KONO
MINISTER OF DEFENSE, JAPAN

(Excerpts of speech of Taro Kono at Boston Global Forum Conference, December 12, 2019.)

"These efforts [to combat cyber security threats] will remain up high in the sky without the existence of a properly trained workforce."

"Such efforts to improve the treatment of personnel, that will include higher financial reverse, particularly important in the area of cyber security."

"In order to maintain readiness and resilience in the cyber domain, close collaborations with our ally, the U.S. forces, is crucial."

To view Minister Taro Kono's full speech:
https://bostonglobalforum.org/news-and-events/events/minister-taro-kono-speech-at-the-bgf-global-cybersecurity-day-symposium-for-2019/

Boston Global Forum Conference, Global Cybersecurity Day, December 12, 2019

Key Speakers: Thomas Patterson, Bradlee Professor of Government and the Press, Harvard University; Governor Michael Dukakis, Chairman & Co-Founder, Boston Global Forum; Minister of Defense Taro Kono, Ministry of Foreign Affairs of Japan; Yasuhide Nakayama, Professor Alex Pentland, Professor and Director of MIT's Human Dynamics Laboratory, Co-founder of AIWS Innovation Network; Professor Nazli Choucri, Professor of Political Science at MIT, Co-founder of AIWS Innovation Network; Marc Rotenberg, President of EPIC; Nam Pham, Assistant Secretary of Business Development and International Trade of Government of Massachusetts; President Vaira Vike-Freiberga, Former President of Latvia, President of Club de Madrid.

- Speech of Japanese Minister of Defense Taro Kono
- Speech of President Vaira Vike-Freiberga (World Leader for Peace and Security Award Recipient)
- The Drafting for the Cyber Safety of the AI World Society Social Contract 2020.
- Announcement of AIWS Innovation Network, co-founders of AIWS Innovation Network: Governor Michael Dukakis, Mr. Nguyen Anh Tuan, Prof. Nazli Choucri, Prof. Thomas Patterson, Prof. Alex Pentland, Prof. David Silbersweig, Prof. Christo Wilson.

https://bostonglobalforum.org/news-and-events/events/the-bgf-global-cybersecurity-day-symposium-for-2019/

The National Interest and Democracy's Challenge

JOSEPH NYE
EMERITUS PROFESSOR, HARVARD UNIVERSITY

(Excerpts of Joseph Nye's speech at Boston Global Forum/Democratic Alliance on Digital Governance Conference, July 1, 2020.)

"The moral issue is not whether you protect the national interest. It's whether you define the national interest broadly enough so that what's good for you is good for others as well. And that's where I think we have failed in this current crisis."

"We're seeing a slight decline in economic globalization. That was already underway, but I think it will be increased by the effects of the pandemic. But the one thing we're not seeing that many people predicted is the authoritarian model proving to be more powerful than the democratic model."

To view Professor Joseph Nye's full speech:
https://bostonglobalforum.org/news-and-events/events/professor-joseph-nye-at-the-democratic-alliance-on-digital-governance-conference/

Finding Value in Machine-Assisted AI

ASH CARTER, HARVARD KENNEDY SCHOOL PROFESSOR AND FORMER U.S. SECRETARY OF DEFENSE

(From remarks by Secretary Ash Carter at Boston Global Forum Conference, December 12, 2020.)

"Building a bridge of values between us, our community of nations, and values and that value stream while continuing to keep peace and commerce is the challenge of our time".

"Machine assisted human intelligence is going to be part of our future and the question is how do you situate that assistance in value".

"In missions or applications of AI that are great like national security and especially where it involves the application of lethal force or law enforcement or the provision of health care, you can't have the standards of the people who sell advertising. They can afford to make errors. What's the big deal if you pitch an ad to someone and they don't buy the product or they buy the product and you never pitch the ad, the two kinds of errors that you can make. No consequences. The fact that the internet era was born in essentially the advertising industry, engendered a kind of amorality in the application of technology that we are just in the process of correcting. Nowhere has that correction been pioneered more than in Ursula von der Leyen's Europe".

To view the video of Secretary Ash Carter's remarks: https://youtu.be/FRwewLSK_o8?t=654

Global Cybersecurity Day, December 12, 2020, World Leader for Peace and Security Award

Key Speakers: Governor Michael Dukakis, Chairman & Co-Founder, Boston Global Forum; President Ursula von der Leyen, President of the European Commission; Ash Carter, Former Secretary of Defense; US Congresswoman Robin Kelly, (D-IL 2nd District); Professor Nazli Choucri, Professor of Political Science at MIT, Co-founder of AIWS Innovation Network; Nguyen Anh Tuan, Co-Founder, CEO, Boston Global Forum.

- Speech by EU President Ursula von der Leyen (World Leader for Peace and Security Award Recipient)
- AI International Accord Initiative
- Social Contract Index – Democratic Value

https://bostonglobalforum.org/news-and-events/events/global-cybersecurity-day-2020-artificial-intelligence-and-democratic-values/

Managing Technological Change

EVA KAILI
MEMBER OF THE EUROPEAN PARLIAMENT FOR GREECE

(Excerpts of Eva Kaili's remarks at AI International Accord Panel, 2021)

"The datafication of our societies, via the deployment of AI technologies, is transforming the world as we know it and has the power to challenge and dismantle the fundamentals of our democracy. The ongoing technological change, far from being deterministic in its nature and effects, needs to be managed in a proactive and people-centric manner. A new social contract is needed to ensure that any multilateral attempt to shape an AI governance framework is inclusive, trustworthy and will enable the net benefits of digital automation and autonomy to be realised and more widely shared. The European Union as an example of a supranational social contract, can serve as a source of policy inspiration for framing a sustainable, democratic and fair AI. With its new AI Act, just like it did with the ambitious GDPR, Europe is setting high standards to protect digital human rights by default, citizens privacy and consumers safety, prohibiting mass surveillance, intrusive monitoring and social scoring practices that could increase inequalities, in aspiration that our democratic ethical principles could be the basis of an international accord on AI."

Human-Centric AI

YASUHIDE NAKAYAMA
STATE MINISTER OF DEFENSE, JAPAN

(Excerpts of Yasuhide Nakayama's speech at AI International Accord Panel, February 19, 2021.)

"AI has become indispensable technology in various fields including in the manufacturing industry, and the medical, agriculture and the financial sectors, with the development of civilian technology. However, scientific developments can also present new challenges to national security. In many countries, the use of AI has led to the development of new military technologies, such as drone swarms and also renewed information warfare threats such as dissemination of fake news"

"As for AI ethics, the social principle of human-centric AI was developed as a guidance. It stipulates principles-related issues. A social principle of human-centric AI consists of seven principles, including human-centric principles that respect basic human rights guaranteed by domestic laws and international norms, and the principles of ensuring security which addresses security risks associated with elements of AI policy observatory of results obtained from AI operations"

"We believe that evaluations and the judgements on the use of AI will follow Japan's social principle of human-centric AI and international norms as I mentioned. At that time, we are based on the social principles of human-centric AI. It is also necessary to consider that the systems need functions to detect and avoid unintended consequences and to shut down or suspend systems that have unintended behaviors.
"It's necessary to have closed communications such as the exchange of information and shared awareness of issues related to the responsible use of AI among like-minded nations and international partners which share these values"

To view Minister for Defense Yasuhide Nakayama's full speech:
https://www.youtube.com/watch?v=nQMPO25uUZk

AI International Accord Panel Feb 19, 2021

Key Speakers: Governor Michael Dukakis, Chairman & Co-Founder, Boston Global Forum; Professor Nazli Choucri, Professor of Political Science at MIT, Co-founder of AIWS Innovation Network; President Vaira Vike-Freiberga, Former President of Latvia, President of Club de Madrid; Prime Minister Zlatko Lagumdzija, Former Prime Minister, Former Foreign Minister of Bosnia-Herzegovina; State Minister of Defense Yasuhide Nakayama, Member of the House of Representatives of Japan, the State Minister for Foreign Affairs; Merve Hickok, Founder, Alethicist.org; Andrew W. Wyckoff, OECD Directorate for Science, Technology and Innovation.

- Moderator: Douglas Frantz, Pulitzer Prize-winning journalist, and former Deputy Secretary-General of the OECD, former Assistant Secretary of State.
- Speech of Japanese State Minister of Defense Yasuhide Nakayama

https://bostonglobalforum.org/news-and-events/events/world-leaders-and-distinguished-thinkers-at-the-first-ai-international-accord-panel/

Government and the Challenge of AI

ROBIN KELLY
U.S. REPRESENTATIVE (D-ILLINOIS)

(Remarks by Robin Kelly at Boston Global Forum Conference, December 12, 2020)

"There's no need for the US to go in alone to ensure that countries like China and Russia do not write the rules of the road. It'll be essential for the US and likeminded countries and bodies like the EU to work together guided by our values. Together, we must develop and exercise new plans and operational concepts for AI enabled capabilities and systems, promote the interoperability of military platforms and decision-making procedures, pool resources for cloud computing, best practices for sharing non-sensitive data sets, and develop common standards for tests, evaluation verification and validation".

"The work is not done just because we passed a resolution. Investments in R&D and national security will be essential to increasing innovation and ensuring that bias and the chance for unintended consequences are reduced. Our workforce must be prepared to adapt, and our education system must prepare students for an AI driven economy. Governments must rise to meet this challenge with a plan that will benefit all of society. With the rate of innovation around the world, it is only a matter of time before the power of AI reaches all communities and industries".

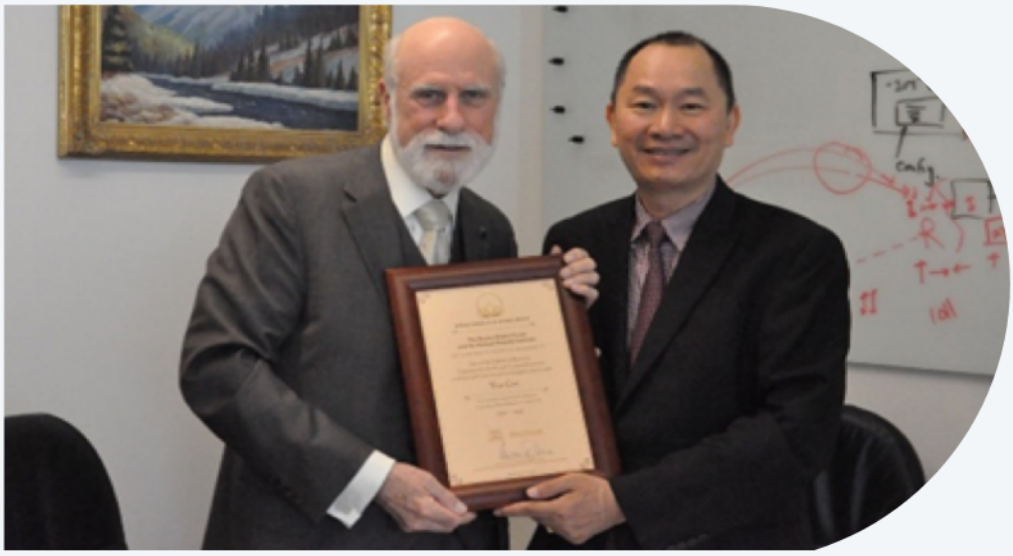
To view the video of Congresswoman Robin Kelly's remarks:
https://youtu.be/FRwewLSK_o8?t=1855

Key Speakers: Governor Michael Dukakis, Chairman & Co-Founder, Boston Global Forum; President Ursula von der Leyen, President of the European Commission; Ash Carter, Former Secretary of Defense; US Congresswoman Robin Kelly, (D-IL 2nd District); Professor Nazli Choucri, Professor of Political Science at MIT, Co-founder of AIWS Innovation Network; Nguyen Anh Tuan, Co-Founder, CEO, Boston Global Forum.

- Speech by EU President Ursula von der Leyen (World Leader for Peace and Security Award Recipient)
- AI International Accord Initiative
- Social Contract Index – Democratic Value

https://bostonglobalforum.org/news-and-events/events/global-cybersecurity-day-2020-artificial-intelligence-and-democratic-values/

Images



Father of the Internet Vint Cerf and
Boston Global Forum CEO Nguyen Anh Tuan

Ursula von der Leyen, President of the European Commission,
2020 World Leader for Peace and Security Award

(Clockwise from top left) MIT Professor Nazli Chucri, Prime Minister of Finland Esko Aho, former President of Latvia Vaira Vike-Freiberga, CEO of Boston Global Forum Nguyen Anh Tuan, and Father of Internet Vint Cerf at Boston Global Forum - Club de Madrid Policy Lab September 16-18, 2020

(Left to right) Former Massachusetts Governor Michael Dukakis, former Estonian President Toomas Hendrik Ilves, Boston Global Forum CEO Nguyen Anh Tuan, Global Cybersecurity Day December12, 2017 at Loeb House, Harvard University

Father of Internet Vint Cerf, Turing Award recipient, 2019 World Leader in AI World Society Award

Judea Pearl, Turing Award recipient, UCLA Professor, 2020 World Leader in AI World Society Award

Stavros Lambrinidis, Ambassador of the European Union to the United States, 2021 World Leader in AI World Society Award

WORLD LEADER FOR PEACE AND SECURITY

"It is greatly reassuring to me that the members of the Boston Global Forum are promoting cybersecurity-related awareness raising activities and fostering discussions in various countries around the world."

Japanese Prime Minister Shinzo Abe,
December 12, 2015

Exploring a Social Contract for the AI Age – a framework to ensure an AI "Bill of Rights" in the digital age – is fundamental in international relations today."

Stavros Lambrinidis, the Ambassador of the European Union to the United States, April 28, 2021

"Calling for members of World Leadership Alliance-Club de Madrid and world leaders to support, endorse and work for the implantation of the Social Contract for the AI Age. Among the central features of the Social Contract for the AI Age are the following:

First, it defines an international TCP/IP (the platform for communication among internet users), that is, a set of norms, values and standards specifically designed as connections among governments for enabling and supporting international relations - including between governments, between companies, between companies and governments.

Second, it is anchored principles of justice and equity, recognizing that communities must have control over their data, given that data literacy at all levels of society is the basis for an intelligent, thoughtful society."

Club de Madrid, December 2020

"At the Michael Dukakis Institute for Leadership and Innovation, you are at the forefront of research and debate. And you definitely work on some of the world's most pressing issues. You drive the discussion on digital policy and how a human-centric approach on AI could look like. This is an issue whose importance simply cannot be overestimated."

"This is why the EU proposes to start work on a Transatlantic AI Agreement. We want to set a blueprint for regional and global standards aligned with our values: Human rights, and pluralism, inclusion and the protection of privacy. A transatlantic dialogue on the responsibility of online platforms!"

President of European Commission
Ursula von der Leyen, December 12, 2020

"Cybersecurity will also be crucial as we implement the recently adopted 2030 Agenda for Sustainable Development, which will require us to tap into the potential of the data revolution and close today's still large digital divides.

On 15-16 December, the United Nations General Assembly will convene a High-level Meeting to review progress in the implementation of the outcomes of the World Summit on the Information Society. Your discussion at this year's Boston Global Forum can provide a timely contribution as we strive together to meet these challenges."

Ban Ki-moon, Secretary General of the United Nations, December 12, 2015

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